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Survival basics in the recession economy

Touche Ross & Co

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From the editors of In Perspective. . .

Survival Basics in the Recession Economy

- *Operational Savings – including cost/benefit analysis, ROI and its capital budgeting benefits, inventory planning, prices, opportunity costs, review techniques, and checklists.*
- *Tax Considerations – including LIFO, payroll and depreciation options, losses, cash flow, credits, investing company funds, and more.*
- *Cash Management – including working capital requirements, managing receipts, disbursements and short term investments.*
- *Inflation Accounting – SFAS 33, and what you should do.*



Touche Ross & Co.

**SURVIVAL BASICS
IN THE
RECESSION ECONOMY**

Executive Summary	2
Chapter 1 – Operational Savings	4
Introduction	6
Cost Benefit Analysis	6
Return on Investment – A Cost/Benefit Tool	8
Requirements Planning for Inventories	16
Decreasing Sales Prices in Recession	19
Opportunity Costs and Their Relationship to Cost/Benefit Analysis	23
Analytical Review Techniques	24
Chapter 2 – Tax Considerations	33
Introduction	34
LIFO	34
Payroll Tax Savings Opportunities	36
Depreciation Options	36
Tax Losses and Cash Flow Problems	38
Tax Credits	39
Investment of Company Funds	41
State Taxes	41
New Tax Proposals	42
Chapter 3 – Cash Management	44
Introduction	45
Working Capital and Cash Needs	45
Speeding Up Cash Receipts	48
Delaying Cash Disbursements	49
Short-term Cash Investment	50
Summary	51
Chapter 4 – Inflation Accounting	52
What You Should Do	53
SFAS 33	53

SURVIVAL BASICS IN THE RECESSION ECONOMY

EXECUTIVE SUMMARY

Nearly seven years ago in late 1973 the world experienced its first oil embargo. Since that time continuing pressure on oil prices by the Organization of Petroleum Exporting Countries – OPEC – has severely impacted the world's economy. Twice since that time – in 1974 and in 1979 – and directly related to the price of oil, the United States has had “double digit” inflation – inflation in excess of 10%. Recession has threatened the U.S. repeatedly since 1973 and there was a brief recession in 1974-75.

Today in 1980 we are again experiencing double digit inflation and the country is now in recession. The prime interest rate rose to 20% – for the first time in history. American lifestyles are changing – people are taking care of their needs while postponing or eliminating the satisfaction of their wants. Automobile purchases are down, cars are much smaller, people are driving less – one example which perhaps reflects a permanent decline in the “American standard of living.” Although interest rates are falling and economists now believe the inflation rate will be the same as 1979 or a bit lower, the depth and breadth of the recession is still a question mark.

This booklet has some ideas to help a company cope with and prepare for the recession and the changing economy. It is divided into four sections:

- *Operational Savings* – Increasing the return from operations – how to get more money.
- *Tax Considerations* – How to keep a larger portion of the money you earn.
- *Cash Management* – How to use your business funds more wisely.
- *Inflation Accounting* – How to determine the effects inflation has on your company's performance.

The table of contents lists the topics covered in each of the sections. Peruse this. It will give you an indication of the ideas we are presenting.

The booklet is not designed as a technical reference work and it does not answer all questions. Although it has been written so that the company manager could read it in an hour or so, we suggest that it be read a section at a time. We have included a brief “questionnaire and checklist” before each section which has the focal points of the particular section. Fill it out or ask an associate concerned with a particular area to fill it out. This will help you understand the material and how it relates to your company.

The main purpose of both the questionnaire and the text is to stimulate thought and to initiate action. We know that little in this book is new but we also know that many of us are simply too busy to pause and concentrate on how to manage more effectively; so fundamentals may begin to slide – particularly in periods of growth. We cannot afford this in the present economy.

Before reading the four sections there are some questions we think you should ask yourself.

- Have you thought about the recession?
 - How does it affect your company?
 - What course of action makes sense?
 - Have you begun to plan?
- How does inflation affect your company?
 - Have you developed a financial reporting mechanism that tells you the effects of inflation?
 - Have you planned to reduce their impact?

Many other ideas will flow from answers to these questions. For example, during a recession a company typically must expect falling sales. How do you react to this – do you produce and stock less? Cut prices? Similarly, a recession will generate credit problems with your customers and, in turn, their customers. Obvi-

ously, this will affect your company; your own liquidity may also be in jeopardy – what tools are needed to help? Another consideration should be the effect of inflation on employee authorizations. Most companies require employees to obtain management approval for certain transactions such as fixed asset acquisitions over a set amount or credit sales over a set amount. But if the dollar limits were fixed several years ago, they have been eroded by inflation and should be increased. This will avoid spending time on approvals for transactions which are insignificant on a constant dollar basis.

We believe that most company managers know a great deal about their companies but need to get it down on paper so it can be analyzed. The first step is to analyze the company's strengths and weaknesses, especially which of these will survive or worsen when the going gets really tough. The need is to select what works and refine it when needed. Some of the aspects to think of are:

- Are my employees working to capacity?
- Are they encouraged to participate and do I respond well to suggestions or just mandate?
- Are there labor/machine trade-offs that are possible?
- What are the company's business goals?
- Are they realistic?
- How will they be achieved?
- Does the plan for achievement have appropriate assumptions and has it considered inflation and recession?
- Does the company really budget?
- What happens when the budget is missed?

This is a management self-review. It does not have to be formal but it must be done – however, informal. Particularly do not overlook your employees and co-managers in doing a self-review. They also have a lot to offer. Brainstorm. It will make them more effective in helping you cope with the recession.

We believe the ideas in this booklet will help you accomplish a self-review and help prepare for the recession. They are designed to be particularly helpful to the smaller and medium-sized company which does not have a large staff of financial executives. We also can help you make a plan that fits your company's needs and elaborate on these ideas – please call on a member of your Touche Ross engagement team or contact the nearest Touche Ross office, or the National Accounting and Auditing Staff in New York.

Operational Savings

4. Do you budget your inventories requirements considering
 - a. opening inventories?
 - b. sales orders?
 - c. inventories production and/or purchasing?

Decreasing Sales Prices in Recession

1. Do you know your current
 - a. practical capacity – how much you can produce?
 - b. normal capacity – how much you produce to meet sales orders?
 - c. unused capacity – what you could additionally produce if you had the sales orders?
2. Do you know your incremental costs of producing more?
3. Do you consider other aspects besides incremental costs in deciding to accept new sales orders?

Opportunity Costs

1. Do you understand what opportunity costs are?
2. Have you identified the opportunity costs you have for various business decisions?
3. Have you ever mathematically calculated opportunity costs?

✓	COMMENTS

INTRODUCTION

A program to generate operational savings is critical to any approach to combat recession and inflation. Anything which a company does in the normal day-to-day conduct of its business is within the scope of this chapter. The chapter covers the following analytical techniques which may be used to generate operational savings:

- Cost/benefit analysis
- Return on investment
- Requirements planning for materials
- Decreasing sales prices in recession
- Opportunity costs and their relationship to cost/benefit analysis
- Analytical review techniques.

None of this is new; the objective here is to put them forward in a way that you can use them in making decisions. It is not important that any of these techniques is used formally or that it results in a report each time you use them. What is important is that each individual renew his or her understanding of these techniques and commit to using them on a day-to-day basis.

COST/BENEFIT ANALYSIS

What It Is

Cost/benefit analysis is the relationship between what a particular course of action requires – that is, what sacrifices (costs) must be made and what will be gained (benefits) by these sacrifices. Cost/benefit analysis can be applied to most business activities and decision processes. These include:

- Purchasing fixed assets
- Buying or selling subsidiaries or other investments
- Beginning a sales promotion campaign
- Developing new products
- Eliminating or alleviating weaknesses in internal control.¹

Cost/benefit analysis is primarily used to evaluate alternative activities and to choose the activity or activities which will have the largest benefits for the related costs and add the largest amount to the company's

assets. Fundamentally, if the anticipated benefits from any proposed activity exceed the anticipated costs, the activity is viable and its implementation will add to the net assets of the company.

An Illustration

A simple example of cost/benefit analysis illustrates these basic concepts. This comes from the Touche Ross publication, *Controlling Assets and Transactions*.¹ In this illustration (p. 16) a cost benefit analysis is performed to alleviate a weakness in internal accounting control. A retail store has a pilferage problem and is losing \$100,000 from the theft of its merchandise. The company has three possible alternatives:

- Install TV cameras in the store without personnel to monitor them; the TV cameras would act solely as a deterrent
- Hire guards to patrol the store
- Use the TV cameras (again without personnel to monitor them) and hire guards.

The company has also estimated the costs and benefits of each of these alternatives:

- TV cameras only – cost – \$20,000 (depreciation on TV cameras, maintenance, operating costs), benefit – eliminate 75% of the pilferage (\$75,000)
- Guards only – cost – \$40,000 (salaries and fringes), benefit - eliminate 90% of the pilferage (\$90,000)
- TV cameras and guards – cost – \$60,000 (total of above two), benefit – eliminate 98% of the pilferage (\$98,000).

The example never considered a fourth alternative – installing the TV cameras and hiring people to monitor them. Presumably, the company had already estimated that the cost of this alternative was higher than the total thefts. Implementing it would result in a larger loss to the company than to do nothing – this is itself a cost/benefit analysis.

¹Touche Ross & Co. *Controlling Assets and Transactions*. New York, 1979.

Figure 1-1 summarizes the cost/benefit analysis for this example.

FIGURE 1-1 COST/BENEFIT ANALYSIS

	<u>TV Only</u>	<u>Guards Only</u>	<u>TV and Guards</u>
Gross benefit	\$75,000	\$90,000	\$98,000
Cost	<u>20,000</u>	<u>40,000</u>	<u>60,000</u>
Net Benefit	<u>\$55,000</u>	<u>\$50,000</u>	<u>\$38,000</u>

There are many important aspects to Figure 1-1:

- Mathematically, only the TV cameras should be used. Although the estimated gross benefit is the smallest of the three alternatives, the cost is also the smallest. The relationships of cost and benefit yield the largest net benefit – \$55,000.
- The relationship between costs and benefits is not proportional (Fig. 1-2). Spending more money does not necessarily result in greater net benefits. If the company hired guards only, the cost would be higher than it would be using TV cameras by \$20,000 but the benefits would be only \$15,000 higher – clearly the company is \$5,000 worse off than it would be by using TV cameras only. Adding the two options together – TV cameras and guards – the company is in even worse a position.

Notice that in this particular example the more costs incurred the greater the benefits but the cost/benefit curve becomes progressively less steep and the cost/net benefit curve actually declines, first moderately and then sharply.

Different Ways of Performing Cost/Benefit analysis

There are two different ways of performing cost/benefit analysis, each from a different vantage point.

- An end result is being considered and the analysis

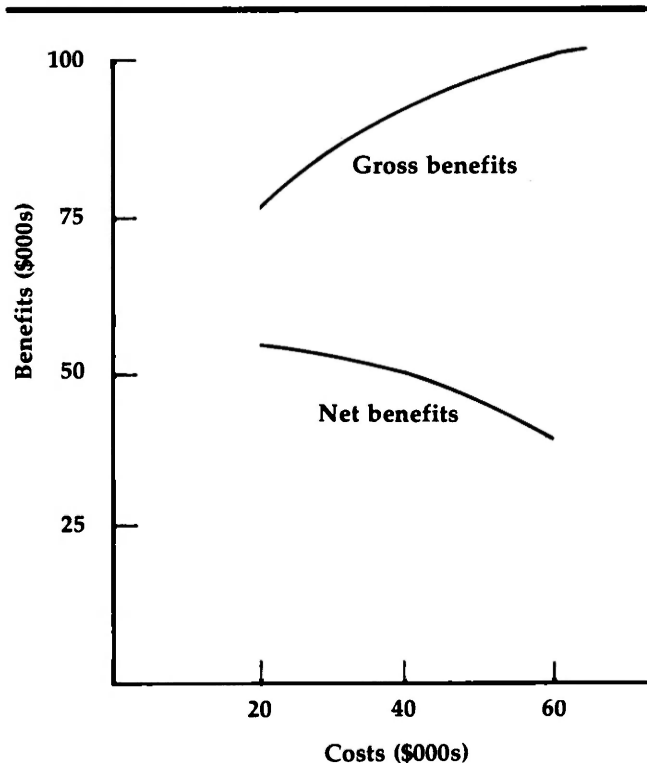
must determine the costs and benefits associated with various alternatives.

- There is a limit to the amount of costs which may be incurred and the analysis must determine the greatest benefits available for these costs.

An example of each of these techniques is:

- Specific end result – A company is establishing a new manufacturing plant capable of producing 1,000 units of the company’s product daily. What are the costs and benefits associated with various production levels and operational modes? (The illustration of the pilferage problem above is also an example of this technique.)
- Costs limits – A company has a budget for new transportation equipment to deliver its products to its customers. What specific equipment should be purchased within the budget’s parameters to yield the greatest benefits?

FIGURE 1-2 COSTS AND BENEFITS



Difficulties in Performing Cost/Benefit Analysis

There are several difficulties in performing cost/benefit analysis. These are:

- Benefits and costs must be quantifiable
- Some benefits and costs cannot be quantified
- The analysis is an estimating process.

Cost/benefit analysis is a mathematical analysis and expression. Thus, to perform it figures must directly be associated with the various benefits and costs in the alternatives being considered. There are several problems in doing this. Cost/benefit is an estimation of the results of a future action. Accordingly, it cannot be determined with precision because the future, of course, cannot be predicted with precision. As difficult as it is to cope with the estimation required, it is even more difficult to quantify *all* of the benefits and costs. For some benefits and costs it may be relatively easy – despite the constraints of predicting the future – to estimate an amount. These include nearly all of the factors of benefits and costs which are typically accounted for in financial statements, for example, increased value of sales, changes in cost of goods sold and other expense items, how much fixed assets will cost and how they will be depreciated. But not all benefits and costs are quantified in financial statements, but they must be considered in cost/benefit analysis. These include customer satisfaction with the company's products and services, effects on competitors, employee morale and motivation, and opportunity costs. *All cost/benefit analyses must consider these factors* – in addition to those which can be quantified – to properly make decisions.

To illustrate this technique, refer back to the earlier illustration. The figures indicate that the company should use only TV cameras; this yields the greatest net benefit of the three alternatives. But the intangible and difficult-to-quantify elements should also be taken into account. For instance, what is the benefit to the company of having the guards in the store? They may be helpful in directing customers to various departments. Employees may also feel more comfortable because there will be less possibility of robberies. On the other

hand, the guards may appear to degrade the store or make customers wary or nervous. All of these intangibles must be considered in addition to performing the mathematical exercise.

Reevaluating Cost/Benefit Analysis

Cost/benefit analysis must be constantly reevaluated. Refinements must always be made as an activity progresses as a check on the continuing validity of the decision. There are at least four critical points to evaluate and reevaluate cost/benefit analysis:

- At inception of the project
- Immediately prior to implementing the project
- During the process of implementation
- After the project has been completed.

The need for the first three is self-evident; they allow the company to stop and reevaluate a project before being fully committed to it. The last point is also critical; it allows the company to determine how well it has done and what needs to be changed to do better in the future.

The rest of this chapter will focus on applying the general concepts of cost/benefit analysis to particular techniques which will generate operational savings.

RETURN ON INVESTMENT – A COST/BENEFIT TOOL

Any brief introductory discussion of cost/benefit analysis must be conceptual. Tools must be available to apply the concepts to real business situations. This is the purpose of this section. Return on investment techniques can be used for nearly all business decisions and will provide the corporate decision maker with information which will enable him or her to make decisions more logically and methodically – in other words, better.

Many people shy away from return on investment techniques. They consider them too difficult and too conceptual. In fact, they are simple and practical. The organization of this section will take the reader step by step through several return on investment techniques – primarily the payback method and internal rate of re-

turn. The computation of each will be detailed along with their advantages and disadvantages. Finally, specific possible applications of these techniques will be outlined along with a practical illustration of the techniques.

Initially, these factors should be kept in mind:

- All return on investment techniques require estimation. It is rare that a company can determine precisely all of the effects and cash flows of any business transaction.
- Return on investment analysis is essentially a quantifying process. There are always qualitative factors which cannot be quantified. These were discussed in the cost/benefit analysis section. The corporate decision maker must always evaluate the qualitative factors with the quantitative analysis.
- The internal rate of return method is superior to any other method. Although it was once difficult and expensive to apply, electronic technology has made it easy and cheap. It is the one method which considers all relevant information. More about this later.

The Payback Method

The first method in this discussion of return on investment is the payback method. As its name implies the payback method computes the amount of time it takes for a company to get back its investment. The computation is:

$$\text{Payback Method} = \frac{\text{Cost of the Investment}}{\text{Annual Cash Flow}}$$

In computing annual cash flow, taxes must be considered.

Payback method – constant cash flows. To illustrate the method, assume that a company is considering purchasing a fleet of trucks. The cost of these trucks is \$200,000. The company estimates that the trucks will have a useful life of 10 years and will generate additional revenues of \$60,000 per year. The annual cash flow is computed as shown in Figure 1-3.

**FIGURE 1-3 PAYBACK METHOD –
COMPUTATION OF ANNUAL CASH FLOW**

Additional cash revenues	\$60,000
Less depreciation*	<u>20,000</u>
Additional pre-tax increase	40,000
Increase in taxes**	20,000
Cash flow:	
Additional cash revenues	\$60,000
Less increase in taxes	<u>20,000</u>
	\$40,000

* Straight line method used, minimum salvage value, computed as:

$$\frac{\$200,000 \text{ cost}}{10 \text{ years}}$$

** For simplicity, a 50% tax rate is used.

Payback period may now be computed. The equation is:

$$\frac{\text{Cost of the Investment}}{\text{Annual Cash Flow}} = \frac{\$200,000}{\$40,000} = 5 \text{ years}$$

This means that it will take the company 5 years to get back its initial investment in the trucks.

Payback method – varying cash flows. Often a capital investment will not yield constant annual cash flows. This occurs for many reasons. For example, a

Operational Savings

fleet of trucks may require greater amounts for maintenance in later years than earlier years. Similarly other investment decisions may have varying cash flows. For example, a new product in a highly innovative industry may sell more in its first several years than in later years. Figure 1-4 illustrates four investments with equal costs and equal total cash flows over the life of the investment but with differing annual cash flows.

For all investments, average annual cash flow is \$40,000 and if this number was used in the computation, the payback period would be 5 years. but it is wrong to use an average cash flow. On closer examination, Investment B provides the *fastest* payback. When there are varying cash flows the cumulative payback from the earliest date determines the payback period. With Investment A there is a large cash flow in 1980

FIGURE 1-4 PAYBACK METHOD – CONTRASTING CONSTANT AND VARYING CASH FLOWS

	Varying Cash Flows			Constant Cash Flow
	Investment A	Investment B	Investment C	Investment D
Cost	\$200,000	\$200,000	\$200,000	\$200,000
Expected Annual Cash Flow*				
1980	\$125,000	\$ 75,000	\$ 20,000	\$ 40,000
1981	35,000	75,000	20,000	40,000
1982	35,000	50,000	40,000	40,000
1983	30,000	50,000	50,000	40,000
1984	30,000	30,000	60,000	40,000
1985	30,000	30,000	70,000	40,000
1986	30,000	30,000	50,000	40,000
1987	30,000	20,000	40,000	40,000
1988	30,000	20,000	30,000	40,000
1989**	25,000	20,000	20,000	40,000
Total	\$400,000	\$400,000	\$400,000	\$400,000
Payback Period	3.2 years	3 years	5.1 years	5 years

* Assumed to be received evenly throughout the year.

** Should include any salvage value of the investment.

with substantially smaller cash flows estimated for 1981-1989. Investment C has smaller cash flows in the beginning and later years with larger cash flows in the middle years. Investment D has constant cash flow in each year and is the same example as in Figure 1-3. Investment B has large cash flows in the first two years and these drop substantially in the third year and continue dropping from there. Cumulatively, Investment B pays back the quickest.

Advantages of the payback method. The payback method has two big advantages. It is very easy to understand conceptually – a company makes an investment in fixed assets, a new product or whatever and how long will it take to get the money back. It is very easy to compute – since the amount of the investment and the cash flows are known or estimated, computation is a matter of simple arithmetic.

Disadvantages of the payback method. The payback method has disadvantages. It ignores two critical factors that are necessary for all capital investment purposes – profitability and the time value of money.

Profitability. All business decisions should ideally generate a profit. The payback method ignores profitability. In the examples in Figures 1-3 and 1-4 each of the investment possibilities yielded a cash flow greater than the investment's cost. Accordingly, they are all potentially profitable. However, the payback method itself did not give this information; only the knowledge of each investment's useful life indicated the profitability. Consider the investments in Figure 1-5. The payback method demonstrates that Investment E is the better choice because its payback period is 4 years while Investment D's is 5 years. (Again, Investment D is the same as in Figures 1-3 and 1-4.) However, Investment E has a useful life of 4 years while Investment D has a useful life of 10 years. Clearly, Investment E does not add to the company's profit – its cost is \$200,000 and its total cash flow is \$200,000. Investment D – although it has a larger payback period – has total cash flows of \$400,000; it is the only appropriate choice (Figure 1-6).

FIGURE 1-5 PAYBACK METHOD – PROFITABILITY ANALYSIS I

	Investment D	Investment E
Cost	\$200,000	\$200,000
Expected Annual Cash Flow	40,000	50,000
Payback Period	5 years	4 years

FIGURE 1-6 PAYBACK METHOD – PROFITABILITY ANALYSIS II

	Investment D	Investment E
Cost	\$200,000	\$200,000
Estimated Annual Cash Flow	\$ 40,000	\$ 50,000
Payback Period	5 years	4 years
Useful Life	10 years	4 years
Total Cash Flow	\$400,000	\$200,000
Profit	\$200,000	-0-

Time value of money. The payback method also ignores the time value of money. A dollar received today is worth more than a dollar received a year from now and that dollar is worth progressively more than one received two, five, ten years later. More will be said about this later.

The Unadjusted Rate Of Return

The unadjusted rate of return goes beyond the payback method because it considers profitability. The unadjusted rate of return is computed by dividing the estimated annual cash flow less depreciation by the average investment. The equation is:

$$\text{Unadjusted Rate of Return} = \frac{\text{Annual Cash Flow Less Depreciation}}{\text{Average Investment}}$$

Figure 1-3 already indicated how to compute annual cash flow. The average investment is computed by adding to the initial cost of the investment its salvage value (the value at the end of its life) and dividing by two. Figure 1-7 illustrates this.

FIGURE 1-7 UNADJUSTED RATE OF RETURN – COMPUTATION OF AVERAGE INVESTMENT

Cost	\$200,000
Estimated salvage value	<u>20,000</u>
	\$220,000
Divide by	<u>2</u>
Average investment	\$110,000

An investment which continually depreciates over time will always have an average investment equal to its cost less straight-line accumulated depreciation at the end of half its useful life. This is what this formula computes.

Figure 1-8 illustrates the application of the unadjusted rate of return using the same investment possibilities as those of Figure 1-6, but with an estimated salvage value of \$20,000.

Disadvantages of the unadjusted rate of return. Like the payback method, the most serious disadvan-

tage of the unadjusted rate of return is that it does not consider the time value of money.

FIGURE 1-8 ILLUSTRATION OF UNADJUSTED RATE OF RETURN

	Investment D	Investment E
Cost	\$200,000	\$200,000
Salvage value (est.)	20,000	20,000
Average investment	110,000	110,000
Expected useful life	10 years	4 years
Annual depreciation*	18,000	45,000
Annual cash flow	40,000	50,000
Annual cash flow less depreciation	22,000	5,000
Unadjusted rate of return	20%	4.5%

* Straight line method used.

Internal rate of return (IRR)

Internal rate of return is the most appropriate and valid technique of computing return on investment. It eliminates all of the disadvantages of the payback method and the unadjusted rate of return because it considers both profitability and the time value of money. Internal rate of return can be described as the interest rate which equates the cash outflows and cash inflows of any investment.

How IRR is computed. It was previously very difficult to compute internal rate of return; it had to be done either by sophisticated computer software or by trial and error using present value tables. In the last few years financial calculators – such as the Hewlett-Packard 38E – which retail for about \$100 have had the capability of computing internal rate of return directly. Figure 1-9 repeats the four investment alternatives in

Operational Savings

FIGURE 1-9 CONTRASTING INTERNAL RATE OF RETURN WITH PAYBACK METHOD

	Varying Cash Flows			Constant Cash Flow
	Investment A	Investment B	Investment C	Investment D
Cost	\$200,000	\$200,000	\$200,000	\$200,000
Expected Annual Cash Flow*				
1980	\$125,000	\$ 75,000	\$ 20,000	\$ 40,000
1981	35,000	75,000	20,000	40,000
1982	35,000	50,000	40,000	40,000
1983	30,000	50,000	50,000	40,000
1984	30,000	30,000	60,000	40,000
1985	30,000	30,000	70,000	40,000
1986	30,000	30,000	50,000	40,000
1987	30,000	20,000	40,000	40,000
1988	30,000	20,000	30,000	40,000
1989**	25,000	20,000	20,000	40,000
Total	<u>\$400,000</u>	<u>\$400,000</u>	<u>\$400,000</u>	<u>\$400,000</u>
Payback Period	3.2 years	3 years	5.1 years	5 years
Internal Rate of Return	24.70%	23.98%	14.72%	15.86%

* Assumed to be received evenly throughout the year.

** Should include any salvage value of the investment.

Figure 1-4. The internal rate of return on Investment A is the highest rate.

Figure 1-9 indicates certain significant factors:

- The payback method does not indicate the best investment. Investment B is the best under the payback method while A yields the largest return.
- The payback method does at least give some indication of yield because earlier cash flows are worth more than later cash flows. By focusing on the cash flows closest to the investment's inception there is some built-in – though not highly accurate – consideration of the time value of money.
- Only the internal rate of return will directly con-

sider all relevant financial factors including – profitability – the time value of money.

- Notice that internal rate of return can be computed just as easily for the irregular cash flows of Investments A, B and C as for the constant cash flow of Investment D. This is also very significant considering that most investments will not generate a constant cash flow.

The mechanics of IRR. IRR is computed by determining the point at which the present value of future cash flows exactly equals the value of the investment. The computer or calculator does this automatically. Figure 1-10 illustrates how this works for the cash flow of Investment A – the best alternative.

Notice that using a 25% rate, the present value of cash flows is less than \$200,000 – this means that the rate of return is less than 25%. Using a 24% rate, the present value is greater than \$200,000 – this means that the rate of return is greater than 24%. Thus the actual rate is between 24% and 25% – the computer or calculator determines it to be 24.7%.

Using Return On Investment For Capital Budgeting

Companies make decisions all the time. All decisions are the selection of a particular action over any possible alternative. For example, a decision of the Acme Shoe Manufacturing Company to sell 1,000 pairs

of shoes to the Friendly Shoe Store at \$19.90 per pair may represent many decisions:

- Certainly when Acme sells to Friendly a decision on price has been made and the sale will be made at \$19.90 per pair, not at any other price.
- Depending on inventory levels, selling 1,000 pairs to Friendly may eliminate – in the short run – any opportunity to sell to others.
- Selling the shoes to Friendly will probably require production of more shoes to meet future needs.

What does all this have to do with using return on investment techniques? If Friendly is a recurring customer of Acme and customarily buys shoes at the prevailing price and if the combination of market forces and Acme's costs has already set the price at \$19.90, what return on investment analysis is necessary?

While most business transactions – such as the Acme/Friendly – are routine, the underlying elements can always be determined by return on investment techniques. These include:

- What products (or services) should the company produce? (Or offer?)
- How should these be produced?
- Who should the company sell to?
- What should the sales terms be – credit worthiness of customer and length of time to pay?
- What should the price be?

FIGURE 1-10 PRESENT VALUE OF FUTURE CASH FLOWS INVESTMENT A

	<u>Actual Cash Flows</u>	<u>25% Rate of Return Present Value of Cash Flows</u>	<u>24% Rate of Return Present Value of Cash Flows</u>
Cost	\$200,000	\$200,000	\$200,000
Expected Total Cash Flow	\$400,000	< \$200,000	> \$200,000

All of these elements need to be considered carefully and they need to be reevaluated regularly. Then, the routine characteristic of most business transactions can be allowed to take place. Further, there are many business transactions which are not routine – these include long-term decisions which cost a lot of money and will affect the company for a long time, like a plant expansion. Return on investment technique must be applied to these.

Return on investment quantifies the investment alternatives for the company. Company officials can then take this quantitative analysis and consider it along with any qualitative characteristics which cannot be quantified, and a decision can be made. Return on investment techniques should be used for the following types of business decisions:

Capital expenditures.

- Fixed asset acquisitions (and dispositions) including
 - Plant expansion
 - Purchase of equipment
 - Buy/lease alternatives.
- Patents and copyrights.

Investment decisions.

- Financing
 - Borrowing
 - Short term
 - Long term
 - Selling stock
 - Payment of vendors
- Acquiring other companies
 - How much to buy
 - What level of control will be exercised
- Investing cash
 - Marketable securities
 - U.S. Treasury or government obligations
 - Bank certificates and commercial paper
 - Short term
 - Long term.

Production decisions.

- What to produce
- How much to produce
- Introduction of new products
- Expansion or contraction of plant facilities.

Sales decisions.

- Whom to sell to
- How much to sell
- At what price.

An example. Acme Shoe has experienced steady growth in the last several years. Its earnings have ranged from 17-21% of stockholder's equity in the last 5 years with average earnings of 18%. Acme is considering a large purchase of equipment in mid-1981 to accommodate a projected increase in sales and production. Acme's sales have been so good that over the past year it has paid off its accounts receivables factor and now finances its own receivables. Further, Acme expects to generate "excess" cash of about \$1,000,000 over the next few months which it would use in 1981 to finance a part of the equipment purchase. Acme wants to invest the "excess" cash.

Acme decides that it wants the "excess" cash to be invested in a highly marketable investment with no risk of loss. Acme understands that it cannot earn as much on the investment as the 18% it has averaged on its equity, but also realizes that the million dollars will earn nothing if it is left in a bank checking account.

After considering several alternatives including U.S. Treasury obligations, commercial paper and corporate stocks and debentures, Acme decides its best alternative is to buy one-year U.S. Treasury bills. Although these yield 8% and this is a few points lower than commercial paper, Acme is not willing to take any risk because the 1981 expansion is critical to its continued existence. This is an example of a qualitative factor in return on investment analysis.

Acme's treasurer recommends the investment to the company's president. The treasurer points out that Acme will earn 8% over the year – less than its average return on equity, but certainly much better than leaving

the money in the bank without interest. The president throws in one last hitch – the expansion may be accelerated and the company may have to sell the Treasury bills before they mature – how will this affect Acme? The treasurer knows that leading economists forecast a decline in interest rates throughout 1980. Here is an illustration of the estimation process of return on investment analysis. The company now has several options –

- Buy one-year Treasury bills.
 - If they must be sold before maturity, they would be sold at a discount.
 - If they are not sold, the yield will be 8%.
- Buy six month Treasury bills.
 - This will lock in the yield for the first six months at 8%.
 - If the plant expansion does not take place until mid-1981 as presently scheduled, the yield for the last six months will be less than 8%.

The treasurer, by estimating how much he believes the interest rate will decline, could now use return on investment techniques to present the president with all alternatives, their advantages and disadvantages, and the yield on each. Acme's officials could then make the best decision appropriate for its needs.

REQUIREMENTS PLANNING FOR INVENTORIES

An economic recession forces corporate decision makers to look closely at the amount of inventories the company maintains. As the section on cash management describes, inventories are current assets of a company which do not themselves generate a return. The return is generated when the inventories are sold for more than their cost. Inventories, in fact, cost money to maintain in addition to the cost to produce or purchase them. These costs include transportation, warehousing, insurance (including self-insurance risks), guards, theft, obsolescence, as well as opportunity costs such as lost interest on funds used to purchase and produce inventories (these funds might either be invested or used

to pay off interest-bearing obligations).

Of course, inventories are critical to a company's continued existence. Without inventories a company would not be able to make sales. Without appropriate inventory levels, a company could lose particular sales because it would – temporarily – be unable to fill all orders. This may lead to permanent sales losses because customers may turn to others to fill their needs for the company's products or services. Maintaining appropriate inventory levels is the purpose of this section.

Applicability To Manufacturing And Merchandising Companies

Requirements planning is applicable to both manufacturing and merchandising companies. Of course the difference between the two is that the merchandising company acts as a middleman between the maker of goods and the user. The merchandising company does not actually change the goods. An example is a supermarket. It buys groceries, meats and produce and sells these to individual families. Of course, the supermarket will buy a case of groceries and sell individual cans or packages or it will cut a side of beef into individual steaks or roasts, but it does not actually change the goods from one thing to another. The manufacturing company, on the other hand, actually does change the goods. It takes raw materials and, by adding a production process, produces something of which the raw materials are only a component element. Manufacturing physically changes the character of the goods. An example is a shoe manufacturer. It takes leather and other materials and makes shoes. What it buys from its vendors is distinctly different from what it sells to its customers.

Planning inventory levels is equally applicable to both types of companies. The considerations of having too much inventory or too little apply to both – along with the actual and potential consequences. The only difference is that it may be more difficult for the manufacturing company because it must consider three types of inventory – raw materials, work in process, and finished goods, while the merchandising company must consider only the last.

How Much Inventory

In determining the appropriate inventory levels the company must ask itself, basically, three questions:

- When must an order for additional inventory be placed or when must inventory be produced – this is the *reorder point*.
- How much inventory should be bought or produced – this is the *economic order quantity*.
- What margin for error should a company provide for in order to alleviate inventory shortages caused by unexpected sales orders and difficulties in obtaining merchandise caused by transportation problems, strikes or vendors not applying these requirements planning techniques – this is the *safety stock*.

An illustration. Companies always want to avoid stock-outs – running out of inventory. Yet the effects of the current recession may afford opportunities to cut back on inventory levels. If an effect of the recession is decreasing sales, then the company should decrease inventories; indeed it might have to decrease inventories to stay in business.

The Beta Bicycle Company is an illustration of these techniques. Beta manufactures one of the best made and the most popular bicycles made in the United States. Beta sold 2,500,000 bicycles last year and sales have increased by about 15% per year for the last 5 years. Because of the recession Beta has experienced a decline in sales for the past several months. These are shown in Figure 1-11.

FIGURE 1-11 DECLINE IN SALES

<u>Month</u>	<u>Units Sold</u>	
	<u>1979</u>	<u>1980</u>
April	300,000	225,000
May	200,000	150,000
June	<u>200,000</u>	<u>150,000</u>
	700,000	525,000

Beta's sales have been about evenly distributed throughout the year except that April and October have always had higher volume because of the summer and Christmas demand. Beta believes it will only sell 2,000,000 bicycles in the fiscal year beginning July 1, 1980 and wants to decrease its inventory production. Beta has projected its unit sales for the year in Figure 1-12.

FIGURE 1-12 PROJECTED SALES – FISCAL YEAR JULY 1, 1980–JUNE 30, 1981

<u>Month</u>	<u>Unit Sales</u>
July	150,000
August	150,000
September	150,000
October	250,000
November	150,000
December	150,000
January	150,000
February	150,000
March	150,000
April	250,000
May	150,000
June	150,000

Beta has always maintained an inventory of about 500,000 bicycles but the cost of these – about \$75 per unit, or \$37,500,000 total – is too high for the company to keep tied up in inventory at the present time. By carefully considering its new projected sales the company can reduce this inventory.

An example of how this may be done is for the company to determine how many months' inventory it wants on hand and what should its safety stock be. If the company decides it must have the following month's projected sales on hand plus 100,000 units as a safety stock, its required inventory may be scheduled as shown in Figure 1-13.

FIGURE 1-13 PROJECTED INVENTORY LEVELS

<u>Month</u>	<u>Projected Unit Sales</u>	<u>Projected Inventory Levels</u>
July	150,000	250,000
August	150,000	250,000
September	150,000	350,000
October	250,000	250,000
November	150,000	250,000
December	150,000	250,000
January	150,000	250,000
February	150,000	250,000
March	150,000	350,000
April	250,000	250,000
May	150,000	250,000
June	<u>150,000</u>	250,000
	2,000,000	

The company may begin to decrease its inventory level to 250,000 and hold that level except during September and March when it must produce more bicycles for the Christmas and summer rushes. The savings to the com-

pany could be significant if the difference between the cost of the new inventory levels and the old level is invested or otherwise used in the business (Beta could use return on investment techniques to quantify these). Of course, if the recession continues to adversely affect the company, the planned decline in inventory levels could make the difference between survival and bankruptcy. (Careful coordination and planning is required if the company is on LIFO to avoid liquidation of LIFO inventory and acceleration of taxes – see the Tax Considerations section.)

Here is another illustration of how requirements planning can work for a company. Delta Machine distributes about 2,500 lawn mowers per year – about 50 per week. Delta always plans to have 2 weeks' supply because it often takes 2 weeks from reorder for Delta's vendors to deliver machines. As a safety stock, Delta adds another 2 weeks' supply to cover delays in delivery and production and unexpected surges in sales which, although infrequent, do occur. Delta's reorder point thus, is when inventory levels reach 200 (4 weeks x 50 units), its economic order quantity is 100 (2 weeks x 50 units), its safety stock is 100 (the difference between the two). Figure 1-14 shows Delta's scheduled shipments and deliveries for the month of July. On June 27, before developing the July inventory planning schedule, two unexpected sales orders for 100 units each were received from two of Delta's biggest customers for shipment during the weeks of July 11 and

FIGURE 1-14 JULY INVENTORY PLANNING

	<u>Weeking ending</u>				
	<u>July 4</u>	<u>July 11</u>	<u>July 18</u>	<u>July 25</u>	<u>August 1</u>
Opening Inventory	250	200	150	-0-	(50)
Scheduled Shipments	(50)	(150)	(150)	(50)	(50)
Scheduled Deliveries	—	100	—	—	100
Closing Inventory	200	150	-0-	(50)	-0-

18. Also the production manager was informed that a delivery scheduled for the week of July 25 had been postponed to the week of August 1. He prepared the schedule illustrated in Figure 1-14 which shows that the company will be below its reorder point by July 11 and have no inventory by July 18. The company will not be able to fill orders scheduled for shipment during the week of July 25 and a part of the week of August 1 and will again have no inventory on August 1.

Careful requirements planning will help alleviate the company's problems. There may be no fault with the company's current reorder point, economic order quantity, or safety stock. But the company does not want to lose the sales and wants to keep its customers happy. The company could do several things. It could postpone some sales after consultation with several of its customers' purchasing agents or it could accelerate deliveries of the machines. Certainly it must arrange for additional deliveries of 200 machines to cover the unusual orders and it must get these as soon as possible. The point of the illustration is that by scheduling inventory requirements – either manually or using computer software – problems can be identified and alleviated.

Applying Requirements Planning To A Service Company

These same concepts could be applied to a service company. John's Automobile Service sells gasoline of a major oil company but primarily generates revenues by repairing cars and trucks. John's has a reputation for excellent service in the community and has revenues and profits far larger than its competitors despite a terrible location. John's employs a shop foreman, four full-time mechanics and two assistants who pump gas and help the mechanics. These seven people, plus some part-time help who pump gas in off hours when the shop is closed, are enough to handle John's normal workload with some time left over to handle emergencies or other unexpected business. John's knows that each April and October more people will want their cars serviced to prepare for summer trips or the winter months. By anticipating these needs, John's can insure that its customers' needs are satisfied by hiring temporary help or arranging with his crew that they work

overtime. John's could even alleviate the costs of overtime by giving the crew time off in slack periods instead of pay.

These same concepts could be applied to any service company and are really no different than those used by Delta Machine in the last example.

DECREASING SALES PRICES IN RECESSION

In recession there are many forces which work to decrease demand for goods and services. The most important of these are lost jobs which directly decrease the money which individuals have to spend. In the current recession there has been the further paradox of double-digit inflation which may further cut into the sales of many companies.

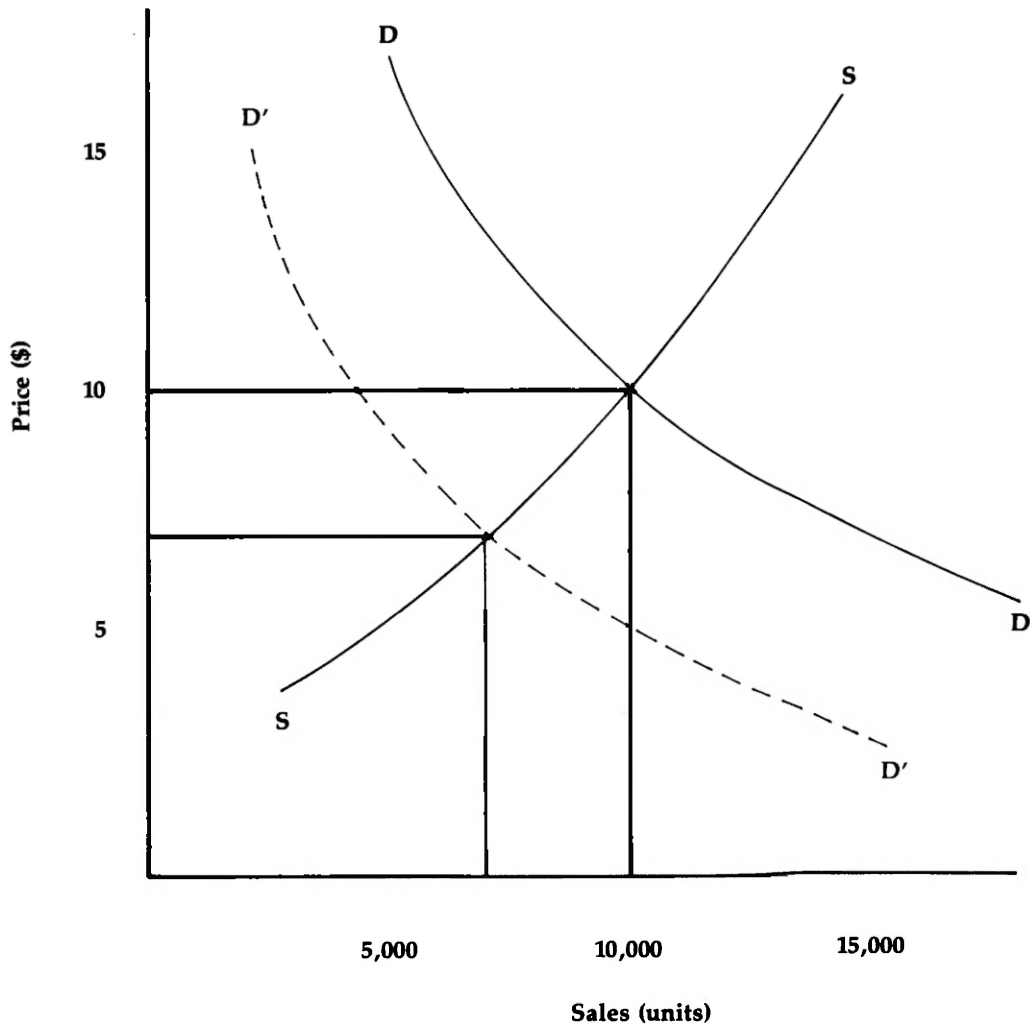
Figure 1-15 shows the classical supply and demand curve. The intersection of the curves SS (supply) and DD (demand) determines the quantity of goods that will be sold and the price. In this illustration 10,000 units will be sold at \$10 per unit. Now introduce the combined effects of recession and inflation and the demand curve shifts to the right – that is, there is less demand. This is represented by the dotted curve DD. This now indicates that only 7,000 units will be sold at a price of \$7.

Many companies exist in a purely competitive environment. That is, the products or services a company produces or offers are no better than those of any other similar company. Accordingly, while the supply curve for all companies takes the "classical" upward shape – the companies as a group are willing to sell more at higher prices and less at lower prices – an individual company's supply curve exists only at the point of intersection of the total supply and demand curves. In other words, the individual company must sell all of its products or services at this price and this price only because if it does not, another company will. This interaction of supply and demand often causes bankruptcies among marginal companies during inflationary periods.

"Selective" Decreases In Prices

While the market forces shown in Figure 1-15 are always operative, it may be possible for an individual

FIGURE 1-15 "CLASSICAL" SUPPLY AND DEMAND CURVE



company to depart from the market price on a selective basis and – by doing this – increase its profits or decrease its losses. To understand how this can work, a case study will be used to illustrate the concepts of capacity and incremental costs.

The case problem. Epsilon Instruments is a manufacturer of electronic calculators. Epsilon has enjoyed phenomenal success in the 1970s as electronic technology has enabled it to produce better calculators

less expensively. The recession has had some impact on Epsilon and it has reduced monthly production from 22,000 calculators to 20,000 calculators. Epsilon sells its calculators to retailers at an average price of \$20. The calculators retail for prices from \$20 for basic models to \$60 for more sophisticated models. Epsilon recently was approached by a large retail chain store which sells calculators under its own private label. This company wants to order 120,000 calculators from Epsilon over the next year – 10,000 per

month at an average price of \$14. Epsilon's production vice president does not want to accept the order for two reasons:

- Epsilon has never produced more than 24,000 calculators per month.
- Epsilon's average cost is \$15 per calculator and it would not make any money on these sales – it would lose money.

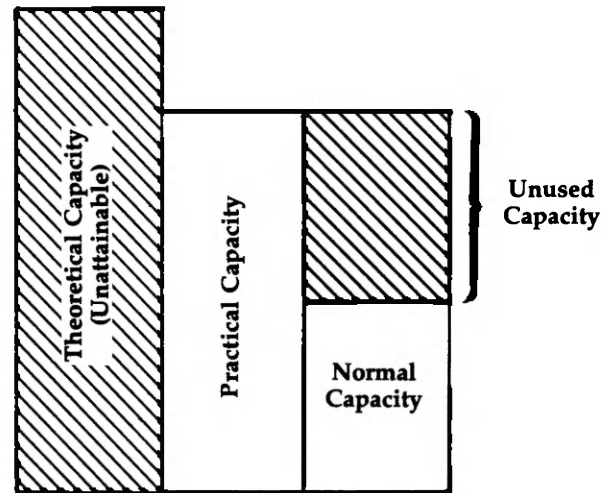
Capacity

The first lesson here is that most companies can physically produce far more than they normally do. Conceptually, there are three levels of capacity – that is, the quantity which a company can produce with its present physical plant and equipment. These are:

- *Theoretical capacity* – The quantity which could be produced if the plant was operated at all times and there were no interruptions in production for any reasons including breakdown of machinery, absence of employees, spoiled merchandise, etc. Theoretical capacity is impossible to achieve, but is a good way to introduce the next two levels of capacity.
- *Practical capacity* – This starts with the theoretical capacity quantity but does allow for normal interruptions in production. It recognizes that machinery – and people – cannot always function optimally and that sometimes the production process will not go perfectly and merchandise may be spoiled.
- *Normal capacity* – This represents the quantity which the company will produce consistent with what it can sell. In other words, the company must evaluate both its practical capacity and the demand for its product in the open market. If Epsilon is physically about to produce 40,000 calculators per month – its practical capacity – but can only sell 20,000 to the market, its normal capacity will be 20,000 units. This is the point at which Epsilon is currently producing.

Figure 1-16 introduces one more term – *unused capacity*. This is the difference between practical capacity and normal capacity. Epsilon has unused capacity. In

FIGURE 1-16 CAPACITY



fact, most companies have unused capacity. The point is that Epsilon can produce the additional 10,000 calculators. That they have never produced at this level before would be no obstacle in the long run. Of course, in the short run Epsilon may have problems gearing up – it may require overtime, additional personnel or another shift. But it is able to produce these calculators.

Incremental Costs

Epsilon's second consideration is incremental costs. Remember that Epsilon's production VP says it already costs an average of \$15 to produce the calculators and if Epsilon sells at \$14 it will not only make no profit, it will lose money. An analysis of Epsilon's costs appears in Figure 1-17.

FIGURE 1-17 ANALYSIS OF COSTS

Direct Materials	\$ 4.00
Direct Labor	5.00
Manufacturing Overhead	6.00
	<u>\$15.00</u>

Further analysis of these costs is necessary. Direct materials and direct labor costs will certainly be incurred to produce these 10,000 calculators. As their names imply, direct materials and direct labor are associated strictly with the production process and are *variable* costs – that is, they will increase in total as total production increases and they will increase in the same proportion as total production. Accordingly, it will cost Epsilon \$4 of direct materials costs and \$5 of direct labor costs to manufacture each of the 10,000 additional units.

Manufacturing overhead, however, is a different story. Manufacturing overhead consists of everything else required in the manufacturing process besides direct materials and labor. This includes rent, depreciation, energy costs, indirect labor such as maintenance people, real estate and payroll taxes, insurance, etc. Many of these costs are *fixed* – that is, they will not increase in total as production increases provided the company does not exceed practical capacity. (If the company exceeds practical capacity, additional plant and machinery will be required thus increasing fixed costs.) For Epsilon the \$6 of manufacturing overhead consists of \$5 of fixed costs and \$1 of variable costs. Accordingly, to produce the 10,000 additional calculators, Epsilon will incur *incremental* manufacturing overhead costs of only \$1. Figure 1-18 presents an analysis of Epsilon’s incremental costs on the private label order.

There are a number of important facts which can be observed from both Figures 1-17 and 1-18.

- Total *fixed* manufacturing overhead is \$100,000 per month. This is computed by multiplying current normal capacity of 20,000 units by \$5 fixed manufacturing overhead costs (\$6 from Figure 1-17 less \$1 from Figure 1-18).
- Provided the company does not exceed practical capacity, incremental costs for additional units will always be smaller than average costs because the \$100,000 of fixed manufacturing overhead costs will be spread over a larger quantity of units.
- Epsilon will make a profit of \$4 per unit from selling the 10,000 private label calculators or a total of \$40,000.

FIGURE 1-18 ANALYSIS OF INCREMENTAL COSTS

Direct Materials	\$ 4.00
Direct Labor	5.00
Manufacturing Overhead	<u>1.00</u>
	<u><u>\$10.00</u></u>

Dangers In Using Incremental Costs

The Epsilon case problem seems to come to a very obvious conclusion – Epsilon should take the order because it will generate profits of \$40,000. But this may not be the right conclusion. Like all other cost/benefit analysis, qualitative factors must be considered. Presently, Epsilon has a *contribution* margin of \$10. This is the difference between average selling price of \$20 and average variable costs (Figure 1-18) of \$10. Contribution margin represents the amount of money available to pay for fixed costs and to generate a profit. Since Epsilon’s fixed assets are \$100,000, its *breakeven point* is computed by the formula

$$\frac{\text{fixed costs}}{\text{contribution margin}} = \frac{\$100,000}{\$10} = 10,000 \text{ units}$$

Any sales above breakeven point generate a profit equal to such sales multiplied by the contribution margin. Since Epsilon is currently producing 20,000, it is making a good profit (10,000 units x \$10 = \$100,000).

If Epsilon accepts the order from the retail chain store and can keep this market separate and distinct from its present market, the order will indeed generate \$40,000 of additional profit. However, if the reduced price for the private label calculators forces Epsilon to reduce its price on calculators manufactured with its own label to \$14, it will severely impact profits. Contribution margin on all sales will decline from \$10 to \$4, breakeven point will be

Operational Savings

$$\frac{\$100,000 \text{ fixed costs}}{\$4 \text{ contribution margin}} = 25,000 \text{ units}$$

instead of 10,000 units and profits will go from \$100,000 down to only \$20,000 (5,000 units sold above breakeven point x \$4 contribution margin).

Clearly, the need to keep the two markets separate is critical. In recession companies will have increased unused capacity and “opportunities” may be presented in the form of quantity sales at lower than usual prices. These might enable the company to reduce its unused capacity and maintain its previous normal capacity levels or even higher production levels. The analysis presented here of capacity and incremental costs – including especially the qualitative factors of how present customers and competitors may react – must be carefully performed before accepting these new “opportunities.”

OPPORTUNITY COSTS AND THEIR RELATIONSHIP TO COST/BENEFIT ANALYSIS

Qualitative factors – such as the many which have been discussed in this chapter – play an important role in cost/benefit analysis. Admittedly it is very difficult to put a dollar figure on qualitative factors.

Despite these difficulties there are “advanced” tech-

niques which can be used in cost/benefit analysis. Take, for example, opportunity costs. If an estimate could be made of the probability of events occurring, then a dollar amount could be assigned to opportunity costs in a cost/benefit analysis.

What does all this mean? An example will clarify. Unique Widgets has some unused capacity. It has received an order for 100,000 regular widgets which will generate a profit of \$30,000. Unique knows that there are two other orders which it may get in the next month – an order for 50,000 specialty widgets which would have a profit of \$60,000 and an order for 120,000 regular widgets which would have a profit of \$36,000. Unique can only produce another 125,000 widgets, so it can only accept either the existing order or one of the other two – if either comes in. It estimates that its chances of receiving the specialty order is 10% and its chance of receiving the larger regular order is 60%.

Unique wants to know what to do. If it accepts the 100,000 regular widget order it will clearly make a profit of \$30,000. On the other hand, if the specialty order or the larger regular order comes in, Unique could not manufacture the widgets and would “lose” additional profits of either \$30,000 or \$6,000. Figure 1-19 analyzes Unique’s opportunity costs of accepting the 100,000 regular widget order.

FIGURE 1-19 CALCULATION OF OPPORTUNITY COSTS

(1) <u>Possible Order</u>	(2) <u>Probability</u>	(3) <u>Profit</u>	(2) x (3) <u>Opportunity Cost</u>
Both specialty and larger regular widgets	10% x 60% = 6%	\$60,000	\$ 3,600
Specialty widgets only	10% x 40% = 4%	\$60,000	\$ 2,400
Larger regular widgets only	90% x 60% = 54%	\$36,000	\$19,440
Neither	90% x 40% = 36%	\$ 0	\$ 0
			\$25,440

The first column describes the possible event – there are only four possibilities:

- Both orders come in
- The specialty widgets order only comes in
- The larger regular widget order only comes in
- Neither order comes in.

A probability is associated with each of the possibilities – if there is a 10% chance that the specialty widget order will come in, then there is a 90% chance that it will not; similarly, if there is a 60% chance that the larger regular widget order will come in, then there is a 40% chance that it will not – these probabilities are then multiplied to determine the overall probability.

The third column is the profit associated with the possible orders. These are self explanatory except perhaps for the first line – both the specialty and the larger regular widget orders come in. If this happens, the company can only accept one of the orders with its present capacity. It would accept the specialty order because this yields a larger profit – \$60,000. Finally, the opportunity cost is calculated by multiplying the probability and the profit and then adding each line.

Because the opportunity cost of \$25,440 is less than the profit of \$30,000 on the existing order, Unique should accept the smaller regular widget order. This is because the combination of the possible orders and the probability of them occurring mathematically is not as great as the profit on the existing order. If the opportunity cost is greater than \$30,000, then Unique should consider how much greater – if it is only marginally greater, Unique should still take the existing order because it is possible for neither order to come in; if it is much greater, Unique should probably wait.

Although there are many other factors a company must consider such as customer goodwill, this type of analysis does quantify opportunity costs and mathematically analyzes some of the risks. It can be very useful in making cost/benefit decisions. The book *Cost-Benefit Analysis for Executive Decision Makers*² by Professor

Alfred R. Oxenfeldt of Columbia University is a very detailed analysis of these and other cost/benefit techniques.

ANALYTICAL REVIEW TECHNIQUES

In making operations and financial decisions a company manager should use analytical review techniques. Analytical review techniques are tests of both financial and operating information, performed by studying and comparing relationships among data to observe:

- Fluctuations that are not expected
- The absence of fluctuations that are expected
- Other items that appear to be unusual.

Management can also use analytical review to identify areas that may require more attention; the principles are the same in either event.

Principal Types Of Analytical Review

1. Comparison of actual results and balances to predicted results or balances
 - Example: Comparison with budgeted figures and investigation of variances for such activities as:
 - Sales to budget
 - Costs to budget
 - Cash flow to budget.
2. Comparison of actual results and balances to prior results and balances
 - Example: Comparison of quantitative data, such as:
 - Sales
 - Purchases
 - Overhead
 - Receivables
 - Payables
 - Inventory.
 - Example: Comparison of qualitative data:
 - Principal customers
 - Principal suppliers.

²Oxenfeldt, Alfred R. *Cost-Benefit Analysis for Executive Decision Makers*. New York: American Management Association, 1979.

Operational Savings

3. Examine consistency between interrelated results and balances
 - Example: Calculating the expected balance in one account based upon the balance in other accounts, e.g.:
 - Accounts receivable based on sales and receipts
 - Interest expense based upon average borrowings
 - Rental income based upon rental units
 - Payroll based on number of employees.
4. Comparison of changes in interrelationships between accounts in comparable periods
 - Example: Examining the ratio of one balance to another and comparing with the ratio in prior

periods, e.g.:

- Sales to accounts receivable
 - Inventory turnover.
5. Comparison of interrelationship between accounts in comparable entities
 - Example: Ratio analysis as outlined in 4. above but comparing results with those in similar enterprises, e.g.:
 - Internally as between like branches
 - Externally as between similar businesses in the same industry.

In all of the above procedures, the most useful and valid results are obtained when the analysis is done at a detailed level, e.g., by product line or category of expense.

Common Analytical Review Procedures

The common analytical review procedures for major financial statement classifications are given below. This checklist may be reproduced for your use in analyzing your financial statements. Space is provided after each major financial statement caption to add other analytical review procedures which are pertinent for your company.

Cash

- Review changes in bank balances during the period and consider reasonableness in view of other cash flow data, such as changes in accounts receivable/payable, etc.
- Compare cash figures to cash flow budgets and determine reasons for variances.
- Other... _____

✓	COMMENTS

Accounts Receivable

- Review the relationship of average receivables to net sales during the period and consider its reasonableness in relation to credit policy, collectibility, etc.
- Compare the current aged listing of accounts receivable with that of a previous date, and note any significant changes, for example, changes in major customers, in the ratio of overdue accounts, in the proportion of credit balances, turnover of receivables, etc.
- Obtain information as to the bad debts written off during the period, and compare it to the extent of bad debts in prior periods, and also to the allowance for doubtful accounts. This information may give some indication of a change in the effectiveness of the company's credit and collection procedures, or a change in general business conditions, etc.
- Determine whether there are any balances with related companies, or with shareholders, directors, or officers. If so, how do these balances compare to similar balances at the last review date? These types of balances may or may not represent genuine "trade" accounts – possibly they should be excluded from the calculation of ratios and other statistics for trade accounts as they may distort the true position with regard to "arm's-length" transactions. They may also pose particular valuation problems.
- Other... _____

Marketable Securities

- Review changes in balances and value of marketable securities and other investments during the period in light of the company's investment policy. Consider in relation to management of cash.

✓	COMMENTS

Marketable Securities (Continued)

- Compare interest and dividend income to prior periods and as it relates to marketable securities and other investments.
- Other... _____

Prepaid Expenses, Deferred Charges and Other Assets

- Compare the prepaid expenses to similar items at the previous review date and determine whether the figures seem reasonable in relation to other information (e.g., increase in level of expenses over the previous year, changes in operations, etc.)
- Review reasonableness of deferral of expenditure in relation to operating results, prevailing economic conditions, immediate industry prospects, etc.
- Other... _____

Inventories

- Calculate percentage of gross profit to sales (departmentally, or by product line if possible) and compare with previous period and with budget. Obtain explanations for significant changes. Coordinate with review of sales and cost of sales.
- Calculate ratio of inventory on hand to usage (departmentally, or by product line if possible) and compare with the previous period and with budget. Obtain explanations for significant changes.
- Review inventory turnover ratios by product line for the period and compare with those of the preceding period and with budgeted figures.

✓	COMMENTS

Operational Savings

Inventories (Continued)

- Review the allocation of costs to inventories used in the financial statements and compare the treatment in the cost accounts. Examine the overhead rates applied and determine whether the inventories contain any cost which should be expensed in the period having regard to known factors such as accuracy of budgeted costs, activity levels, unusual events, etc. Coordinate with review of purchases and wages.
- Compare classifications of closing inventory to those of the closing inventory of the previous period and investigate any significant changes.
- Review other operating trends and statistics which might be of use in drawing attention to inventory valuation problems. Such trends and statistics should always be related to other known facts and to relevant information obtained from other sources. Trends and statistics that might be useful in addition to those mentioned above, would include:
 - Inventory components by location, by type, by product, etc., for the current review date.
 - A reconciliation by units of opening inventory, purchases and production records, sales and closing inventory, with explanations of major discrepancies.
 - Ratios such as cost per unit, material/labor/overhead, for closing inventory and for cost of sales for the period.
 - Overhead costing ratios (e.g., rate per hour, percentage on basic cost, etc.).
- Other... _____

✓	COMMENTS

Operational Savings

Property, Plant and Equipment

- Review changes in these accounts during the period and consider reasonableness in view of other available information, such as cash flow data, changes in accounts payable or long-term debt, increased productivity, etc.
- Review capital budgets where possible and compare amounts spent with amounts authorized and determine whether differences were properly approved.
- Consider the likelihood of property, plant and equipment becoming idle during the period; e.g., has there been a significant drop in production at one of the plants, or has there been a change in product lines which might render some machines idle?
- Review repairs and maintenance expense accounts for the period and compare to previous period, to ascertain whether there are any material items which should have been capitalized.
- Compare the ratio of depreciation to categories of property, plant and equipment (exclusive of land) for the period with that of previous periods, to evaluate the level of depreciation expense and whether a uniform policy of recognizing depreciation is in effect.
- Other . . . _____

Accounts Payable

- Compare the current listing of accounts payable with that of the previous review date and note any significant changes, for example, changes in major suppliers, in the number of overdue accounts, in the proportion of debit balances, etc.

✓	COMMENTS

Accounts Payable (Continued)

- Determine whether there are any balances with related companies, or with shareholders, directors or officers. If so, how do these balances compare to similar balances at the last review date?

- Review statistics such as the comparison of the size of accounts payable to purchases, or the gross profit ratio, and compare to previous periods, and obtain satisfactory explanations for the current figures. (Note that it is not sufficient merely to establish that there has been no significant change from the previous period; the important question is – should there be a change, and if so, how much?)

- Other... _____

Accrued and Other Liabilities

- Compare the accrued expenses to similar items at the previous review date and determine whether the figures seem reasonable in relation to other information (e.g., increase in level of expense over the previous period, changes in operations, etc.).

- Other... _____

✓	COMMENTS

Operational Savings

Long-term Debt

- By reference to repayment requirements, determine whether the change in long-term debt for the period seems reasonable.
- Other... _____

Sales Revenues and Sales Deductions

- Compare sales by product line with budgeted sales and sales of preceding period. Consider whether results are in line with other known information (e.g., expanding/declining markets, changes in sales prices or sales mix, new or discontinued lines, etc.). Sales to related companies and sales of an unusual nature should be considered separately.
- Review details of units shipped with sales and production records. Does sales figure appear reasonable compared to level of production?
- Compare gross profit ratio to previous periods and analyze changes. Consider whether the reasons for such changes appear reasonable.
- Compare sales deductions, such as discounts, as a percent of sales for the current period to prior periods. Consider whether the reasons for changes appear reasonable.
- Other... _____

✓	COMMENTS

INTRODUCTION

In recession times there are “automatic” decreases in taxes – as companies earn less, they reduce the base on which taxes are paid. But companies often do not properly consider all tax advantages which are available to them. This chapter covers several:

- Switching to LIFO
- Saving payroll taxes
- Using accelerated depreciation – and switching back to straight-line
- Expediting tax refunds and delaying tax payments
- Maximizing tax credits
- Reviewing the company’s investments
- Minimizing state taxes
- Understanding and preparing to implement tax proposals and their impact.

This chapter gives some ideas for the company manager to save tax dollars. Every company should minimize its taxes – any other course of action is inherently foolish. While these are some of the principal

ways to save tax dollars, they are not all-inclusive and careful analysis is always required to consider all aspects and ramifications of a tax savings program. Your Touche Ross tax partner, or the tax department of your nearest Touche Ross office can provide more information and assistance.

LIFO

The LIFO method of determining the inventory portion of cost of sales – last in, first out – will generate substantial tax savings in inflation. LIFO is a flow-of-costs inventory method and contrasts with the more prevalent FIFO method – first in, first out.

For a company to continue in business, it must replace inventory which is sold; to expand, it must also increase the size of inventory to accommodate an increasing sales market. LIFO and FIFO are simply different ways of costing the same inventory.

In FIFO, determination of the accounting valuation for goods on hand uses the most recent costs of goods purchased or manufactured, while the cost of goods sold, charged to operations, is recognized at the earliest costs – the costs at which the goods sold were first ac-

FIGURE 2-1 INVENTORY AND COST OF GOODS SOLD – FIFO AND LIFO

Goods Purchased				FIFO				LIFO			
Date	Units	Unit Price	Total Cost	Cost of Goods Sold		Ending Inventory		Cost of Goods Sold		Ending Inventory	
				Units	Cost	Units	Cost	Units	Cost	Units	Cost
Jan 1	100	\$1.00	\$100	100	\$100					100	\$100
Mar 1	150	\$1.10	\$165	150	\$165					150	\$165
May 1	100	\$1.20	\$120	100	\$120			50	\$ 60	50	\$ 60
July 1	100	\$1.25	\$125	100	\$125			100	\$125		
Sept 1	150	\$1.30	\$195	50	\$ 65	100	\$130	150	\$195		
Nov 1	<u>200</u>	<u>\$1.35</u>	<u>\$270</u>	—	—	<u>200</u>	<u>\$270</u>	<u>200</u>	<u>\$270</u>	—	—
	800		\$975	500	\$575	300	\$400	500	\$650	300	\$325

quired. In LIFO, it is exactly the reverse. Figure 2-1 illustrates how this works.

Assume that a company began business in 1980 and purchased goods for resale. The figure shows cost of goods sold for the period and inventory cost at end-of-year as calculated by both FIFO and LIFO, assuming that 500 units were sold and 300 remain in inventory.

Obviously, Cost of Goods Sold together with Ending Inventory total the same (\$975) in both methods since together they equal the total of goods purchased during the year. However, with LIFO, Cost of Goods Sold is \$75 higher and Ending Inventory is \$75 lower than with FIFO. At a tax rate of 50%, the company has saved 50% of this difference – \$37.50.

Of course, it is hardly worth bothering with different inventory methods to save \$37.50, but this simple example does suggest the advantages of this method. Figure 2-2 magnifies the use of LIFO. Here a company which started business in 1967 has enjoyed actual sales growth of about 10% a year. In the first year it sold 10,000 units and had 2,000 units in inventory, all at a cost of \$10. Costs of goods purchased in succeeding years are assumed to increase approximately with the Consumer Price Index and the company increased inventory units by the same 10% increase over the previous year to accommodate the larger sales volume.

Figure 2-2 shows tax savings of LIFO over time. The detailed computations are not shown to eliminate unnecessary detail in the illustration; these computations are made using the same basic principles shown in Figure 2-1. Notice that in 1967 – the company's first year in business – there is no difference between the FIFO and LIFO methods. This is because the differences arise only when the price of goods increases; the illustration shows how the differences over time become especially dramatic when the inflation rate jumps significantly as it has in the past few years. By 1979 the company has saved a total of \$24,000 in tax dollars over the years. LIFO tax savings are also greater in years of higher inflation (e.g., 1974, 1975, 1978, 1979) which makes LIFO especially attractive in today's economy.

These illustrations cover only the basic advantage in LIFO – that in periods of inflation (the Consumer Price Index has declined only twice in the past 40 years and is

FIGURE 2-2

LIFO TAX SAVINGS

Year	Goods Purchased			Units		FIFO		LIFO		LIFO Tax Savings		
	Units	Price	Cost	Sold	In Ending Inventory	Cost of Goods Sold	Ending Inventory	Cost of Goods Sold	Ending Inventory	Increased Cost of Sales Over FIFO	Tax Savings at 50%	Cumulative Tax Savings
1967	12000	\$10.00	\$120,000	10000	2000	\$100,000	\$ 20,000	\$100,000	\$20,000	\$ —	\$ —	\$ —
1968	11200	10.40	116,480	11000	2200	113,600	22,880	114,400	22,080	800	400	400
1969	12300	11.00	135,300	12100	2400	131,780	26,400	133,100	24,280	1,320	660	1,060
1970	13500	11.60	156,600	13300	2600	152,840	30,160	154,280	26,600	1,440	720	1,780
1971	14900	12.10	180,290	14600	2900	175,360	35,090	176,660	30,230	1,300	650	2,430
1972	16400	12.50	205,000	16100	3200	200,090	40,000	201,250	33,980	1,160	580	3,010
1973	18000	13.30	239,400	17700	3500	232,850	46,550	235,410	37,970	2,560	1,280	4,290
1974	19900	14.80	294,520	19500	3900	283,350	57,720	288,600	43,890	5,250	2,630	6,920
1975	21900	16.10	352,590	21500	4300	341,080	69,230	346,150	50,330	5,070	2,540	9,460
1976	24100	17.10	412,110	23700	4700	400,970	80,370	405,270	57,170	4,300	2,150	11,610
1977	26600	18.20	484,120	26100	5200	469,850	94,640	475,020	66,270	5,170	2,590	14,200
1978	29200	19.50	569,400	28700	5700	552,890	111,150	559,650	76,020	6,760	3,380	17,580
1979	32200	21.70	698,740	31600	6300	673,180	136,710	685,720	89,040	12,540	6,270	23,850

FIGURE 2-2

now more than 5 times 1940 levels) using LIFO rather than FIFO or any other inventory method can save substantial tax dollars.

Drawbacks Of LIFO

Of course, if the steady rise in prices were to be arrested or reversed – perhaps because a recession or a glut made suppliers lower prices in the face of softening demand – then LIFO accounting could be detrimental. The LIFO method works, after all, by taking advantage of a dollar which is continually diminishing in real value. If the real value were to start growing, a company using LIFO could end up paying bigger and bigger chunks of its income in taxes. Similarly, a decline in the quantity of goods in inventory because of decreasing demand during a recession could have adverse tax consequences.

During an inflationary period, the reverse happens – the real value of every new dollar stated is less and less. Since LIFO does not distinguish between the \$10,000 that bought a factory in 1940 and the \$10,000 that bought a hand truck last week, it minimizes stated income and so reduces income tax. But it depresses the company's earnings statement at the same time, and might hurt a company's ability to sell equity or borrow – unless the investors and brokers know the scoop.

IRS LIFO/FIFO Conformity Rules

The IRS has dictated in specific regulations that if a company uses LIFO for tax purposes, then it must also use LIFO for its financial reporting which reduces reported earnings. This is the main reason why tax-saving through LIFO has not been more widespread. Recent IRS regulations that ease the LIFO conformity rules make it easier for taxpayers to adopt LIFO. We believe, however, that LIFO makes sense – it saves tax dollars and it provides for more realistic financial reporting (more about this in Chapter 4).

PAYROLL TAX SAVINGS OPPORTUNITIES

The increased use of computer software and computer service bureaus has made many companies aware

of specific rules on payroll taxes which can save substantial tax dollars. The most salient of these is that FICA (Social Security) taxes are not payable to the government on compensation paid while an employee is sick. This applies to leaves of one day or more.

All a company has to do is keep track of “sick pay” and not pay the employer's share of FICA tax, nor deduct the employee's share. This is a simple matter, whether done manually or through a special code fed into the computer.

Of course, if most of a company's employees earn over the maximum FICA wage base (for 1980, \$25,900 per year), there is less opportunity for savings. But even in such companies there are usually substantial numbers of lower-paid clerical workers and support staff earning less than the wage base. A company can save tax dollars on sick pay paid to these employees.

A company should also make sure that only valid unemployment compensation payments are charged against it. Unemployment increases in recession and unemployment payments are funded by payroll taxes paid solely by the employer – the higher the payments, the higher the tax rate. If a former employee voluntarily resigned or was fired for cause, he is often ineligible for unemployment compensation. A company is usually notified of all unemployment compensation claims and should investigate each claim's validity.

DEPRECIATION OPTIONS

One way of minimizing taxes is to expense more of a depreciable asset during its early years than during the later years. These accelerated methods of depreciation, such as the declining balance method or the sum of the years-digits method, may be used at the taxpayer's discretion, except to depreciate real estate. The maximum accelerated method available for depreciating new commercial real estate, other than residential rental property, is the 150% declining balance method; no accelerated methods are available for used nonresidential commercial real estate.

Switching From Accelerated Methods To The Straight-Line Method

The use of accelerated depreciation for tax purposes does not mandate its use for financial reporting, where

FIGURE 2-3 SWITCHING FROM DOUBLE-DECLINING BALANCE TO STRAIGHT-LINE DEPRECIATION

Original Cost \$20,000 (minimal salvage)
 Useful Life 10 years

<u>Year</u>	<u>Unamortized Cost</u>	<u>Depreciation</u>	
		<u>DDB</u>	<u>SL on Unamortized Cost</u>
1980	\$20,000	\$4,000	\$2,000
1981	16,000	3,200	1,777
1982	12,800	2,560	1,600
1983	10,240	2,048	1,463
1984	8,192	1,638	1,365
1985	6,554	1,311	1,311
1986	5,243	1,049	1,311
1987	4,194	839	1,398
1988	3,355	671	1,678
1989	2,684	537	2,684

the taxpayer may use the straight-line method. Most taxpayers use accelerated methods of depreciation in preparing their tax returns, but many do not switch to the straight-line method at the point when straight-line depreciation exceeds accelerated depreciation. Figure 2-3 illustrates the advantage of switching from the double-declining balance method to the straight-line method.

Through 1984, depreciation by declining balance method exceeds straight-line, in 1985 they are the same and from 1986-1989 straight-line exceeds declining balance. Obviously, the switch should be made about 1985. Note that under the DDB method the asset is still not fully depreciated after 10 years even though its useful life is ended. Similar analyses may be completed for conditions of other depreciation methods and other useful lives to determine the optimal point to

switch to straight-line.

ADR – Class Life Asset Depreciation Range System

The IRS has developed a depreciation system to gauge the recommended useful life over which an asset should be depreciated. This Asset Depreciation Range system, or ADR, gives an “Asset Guideline Period” for each of a wide variety of depreciable assets. In scheduling depreciation, a taxpayer may depart from this Asset Guideline Period by as much as 20% without challenge by the IRS. These guidelines are not binding on companies that can justify different useful lives.

For example, the Asset Guideline Period for office furniture, fixtures, and equipment is 10 years. With the 20% discretionary margin, the range for depreciating these assets becomes 8 to 12 years. See Revenue Procedure 77-10 as supplemented and amended for current

ADR tables. New property may be depreciated by the straight-line, the double-declining balance, or the sum of the years-digits method; used property may be depreciated through either the straight-line or the 150% declining balance method.

Under the ADR system, the taxpayer may use an "Annual Asset Guideline Repair Allowance Percentage." This establishes a guideline for repairs which are clearly not capital expenditures. The guideline is to avoid possible disputes between taxpayer and IRS over which expenditures may be deducted immediately as repairs and which must be capitalized and depreciated over the asset's remaining life. All expenditures for repairs and rehabilitation will be considered currently deductible if they do not exceed the specific allowance. These guidelines are published with the ADR ranges. The guideline for office furniture, fixtures, and equipment is 2%; for automobiles and trucks it is 16-1/2%.

Other Tax Savings Through Depreciation

There are three other matters that can result in saving substantial tax dollars. These are component depreciation, immediate deduction for sales tax, and leasing versus purchase.

With component depreciation, tax savings are available by breaking out components of a building and depreciating them separately from the building shell. For example, a building may be depreciable over 40 years but certain parts of it – such as fixtures – may be depreciable over 10 years. Obviously, the shorter the useful life, the greater the depreciation in earlier years no matter what method is used.

Most states and many municipalities charge sales tax on a wide variety of merchandise and services. Sales tax paid on a depreciable asset is immediately deductible for tax purposes but may not be included in the cost basis of an asset being depreciated.

Finally, a company may be better off leasing an asset rather than buying it. Often arrangements may be made for the asset's investment tax credit to be "passed through" to the lessee. Return on investment techniques should be used to determine whether it is better to lease rather than buy; these are discussed in Chapter 1.

TAX LOSSES AND CASH FLOW PROBLEMS

The Internal Revenue Service has several rules which can alleviate a tax burden under certain circumstances. These include:

- Corporation Application for Quick Refund of Overpayment of Estimated Tax – Form 4466
- Application for Extension of Time for Payment of Tax – Form 1127
- Extension of Time for Payment of Taxes by a Corporation Expecting a Net Operating Loss Carryback – Form 1138.

Quick Refund Of Overpayment Of Estimated Taxes

Often, particularly in economic downturns, a company will overpay its current year's taxes. When this happens Form 4466 may be filed to obtain a refund after year-end and prior to filing the tax returns. This form is a simple recomputation of the expected income tax liability – similar to what is needed to prepare the original estimate. The IRS will act on a Form 4466 application within 45 days and refund any overpaid money.

Extensions

Extension of time for payment of tax. A taxpayer can delay payment of taxes already due beyond the due date if the taxpayer can demonstrate that paying the tax currently will result in "undue hardship." "Undue hardship" means that the taxpayer will suffer financial loss if the tax is paid on the due date. The company must demonstrate that it does not have enough cash, above necessary working capital, to pay the tax and cannot convert sufficient assets into cash without selling property or other assets at a price below market (sacrifice price). The IRS may grant an extension for 18 months and may, in rare cases, extend this an additional 12 months. Interest is charged at the current rate (12% at this writing). The IRS also may require security as collateral for the extension. The kind of security may be a bond, filing of notice of lien, mortgage, pledge, deed of trust of specific property or general assets, or personal surety. No collateral is required if the taxpayer has no

assets. An application must be filed on Form 1127 and must detail:

- the date to which the extension is requested,
- why the extension is necessary,
- why the taxpayer is unable to borrow the money to pay the tax,
- what security the taxpayer will pledge to cover the liability.

In addition, a statement of assets and liabilities as of the last preceding month with both book and market values and a statement of receipts and disbursements for the three months before the tax is due must be attached to Form 1127. The IRS generally acts on a Form 1127 application within 30 days if possible.

Extending tax payments when NOLs are expected.

A corporation expecting a net operating loss in the current year may apply this expected NOL to reduce or eliminate any tax due for the prior year. The corporation must file Form 1138 which must detail all reasons why the corporation expects a NOL. The corporation must consider all facts and circumstances relating to its operations to determine that it will have a NOL. These include current income statements and a description of peculiarities of the corporation's operations, such as canceled contracts – government or other. The corporation is responsible for the accuracy of the fact and estimate of the NOL. Any tax payments which prove to be due will be charged interest – presently 12% – from the original due dates. The IRS generally acts on a Form 1138 application within 4 to 6 weeks.

TAX CREDITS

Tax credits are critically important in minimizing tax dollars. Tax credits are direct reductions on the amount of tax owed, in contrast to tax deductions which reduce the taxable income to which the tax rates are applied. Every dollar of tax credits is a dollar reduction in the amount of tax payable to the government. There are three tax credits that this section focuses on:

- Investment tax credits
- Jobs credits.
- Energy credits

Investment Tax Credits

Nearly everyone is familiar with the investment tax credit (ITC). Initially enacted in 1962 to help alleviate the recession at that time and to increase capital spending, it has become a permanent feature of the tax law. Basically, most depreciable property except the structural components of a building qualifies for the credit (Section 38). Also rehabilitation expenditures for certain existing structures qualify for the credit. The maximum credit is 10% for property with a useful life of 7 years or more. This rate drops to 6-2/3% for property with useful lives of 5-7 years and 3-1/3% for property with useful lives of 3-5 years. No credit is allowed for property with useful lives of less than 3 years.

There are also limits on the amount of investment tax credit that is allowable each year. The credit may not exceed the tax liability. In addition, if the tax liability exceeds \$25,000 the credit may not be greater than \$25,000 plus 70% of the tax liability over \$25,000 (this changes to 80% for taxable years ending in 1981 and 90% in 1982). Any unused ITC may be carried back against tax paid for the past three years and carried over against taxes payable over the next seven years.

A company may increase the usual 10% maximum ITC up to 11 to 11-1/2% if it places the additional 1 to 1-1/2% in an employee stock ownership plan (TRASOP). This additional credit is scheduled to end on December 31, 1983.

Energy Credits

An additional investment tax credit of 10% is given to any business energy property which is also Section 38 property (that is, depreciable property other than a building and its structural components); an initial credit of 10% is given to any business energy property which is not Section 38 property. The IRS considers the following business energy property:

- Solar or wind energy property
- Recycling equipment
- Shale oil equipment
- Equipment for producing natural gas from geopressured brine

Tax Considerations

- Alternative energy property such as a boiler which uses an energy source other than oil or gas or mixes another energy source with oil and gas
- Energy property specifically defined by the IRS.

Investment credits for business energy property may equal 100% of tax liability (the regular investment tax credit is applied first and the same carryback and carryover rules apply). Credits for solar and wind energy property are directly refunded if they exceed the tax liability.

Although the use and understanding of the investment tax credit is universal, our initial analysis of energy credits is that taxpayers often do not avail themselves of these and do not consider them in return on investment analysis (see Chapter 1).

Jobs Credits

A company may obtain tax savings by hiring persons who are members of certain targeted groups, primarily the economically disadvantaged. These individuals can be:

- vocational rehabilitation referrals,
- economically disadvantaged youths, Vietnam-era veterans, and ex-convicts,
- Supplementary Security Income (SSI) recipients,
- general assistance (welfare) recipients,
- youths participating in a cooperative education program.

The IRS defines an “economically disadvantaged” per-

FIGURE 2-4 TAX SAVINGS – JOBS CREDIT

Without jobs credit	
Salaries paid deducted from gross income	\$100,000
Tax savings at 46%	<u>\$ 46,000</u>
 With jobs credit	
Salaries subject to jobs credit:	
First year salaries \$10,000 @ 50% =	5,000
Second year salaries \$12,000 @ 25% =	<u>3,000</u>
	<u>8,000</u>
Remaining salaries deductible from gross income	
\$100,000 – \$8,000	<u>\$ 92,000</u>
Tax savings at 46%	42,320
Plus tax credits	<u>8,000</u>
	<u>50,320</u>
Tax savings using jobs credit	
\$50,320 – \$46,000	<u>\$ 4,320</u>

son as one whose annualized family income for the six months prior to the hiring date is less than 70% of the Bureau of Labor Statistics lower living standards.

The tax credit is computed as follows:

- 50% of total first-year wages limited to \$6,000 per employee
- 25% of total second-year wages limited to \$6,000 per employee.

The amount of the credit must be subtracted from salaries deducted in determining taxable income. Figure 2-4 illustrates the tax savings available. By using the jobs credit, which is elective by the taxpayer, the company has saved \$4,320 in tax dollars.

INVESTMENT OF COMPANY FUNDS

Other chapters of this book describe techniques for maximizing returns on investment and optimizing the use of a company's cash. There are certain tax considerations which a company must also consider to maximize the return on invested cash.

While it is often advantageous for individuals to invest in U.S. Treasury obligations because the interest income is not subject to state and local taxes, similar tax advantages are not available to corporations. Accordingly, interest received on U.S. Treasury obligations is fully taxable to a corporation.

In contrast, substantial advantages may be available for investments in corporate stocks and bonds. Dividends paid to an individual are fully taxable except for the first \$100 (\$200 if filing a joint return). 85% of the dividends received by a corporation from another domestic corporation are nontaxable – a substantially different tax exclusion from that available to individuals. 100% of the dividends received from an affiliated corporation is nontaxable.

Many states permit allocation of income between income earned in the particular state – which is taxable, and income earned out of the state – which is nontaxable. Similarly, many states permit allocation of investment income. A particular state will determine the percentage of a company's operations generated in the state and only tax that portion of investment income. For

example, if the ABC Company and XYZ Company each pay a \$5 annual dividend, and the taxpayer's state determines that 90% of ABC's business is generated in the state and only 5% of XYZ's business is generated in the state, \$4.50 of ABC's dividend will be taxable while only \$0.25 of XYZ's will be taxable.

Of course, a company should not look solely to the taxability of investment income in determining how to invest, but this is certainly one factor which should not be overlooked.

STATE TAXES

Federal taxes are a substantial cost to corporations. (The federal government taxes corporate income over \$100,000 at a 46% rate. Taxes on the first \$100,000 are also substantial – 17% of the first \$25,000, 20%, 30%, and 40% of the next three \$25,000 increments.) State and local governments often also impose a great tax burden. The highest of these is the Pennsylvania corporate income tax – a 10.5% tax rate. Many corporations pay over 50% of their earnings to government in the form of direct income taxes.

Allocations Of Corporate Income

There are some opportunities for state – and local – tax savings which a company should use if its circumstances permit. The most important of these is allocation of corporate income among states. Just as most states permit the allocation of investment income between income earned in the particular state and income earned out of the state, other corporate income may be similarly allocated. If a company does business in several states but is headquartered in a state with a high tax rate, allocation of corporate income among the several states will result in tax savings. Often all the company must do is establish a sales office in another state to qualify for allocation. Companies doing business in several states should carefully evaluate the tax laws of each state to determine a plan to minimize these taxes.

Other Areas

There are two other areas which may generate state tax savings. These are:

- Net operating losses
- Investment tax and other credits.

Certain states permit the carryback and carryforward of net operating losses and have investment tax credits similar to the federal government's, others do not. Particularly when a company operates in several states, knowledge of the tax laws and how these compare by state is essential to optimizing the effects of taxes. For example, although it should not be the only criteria used to make a business decision, the purchase of property eligible for investment credit will save more tax dollars if it is placed in service in a state which also has an investment credit.

The point of this section is that a knowledge of the tax laws and rules of each state in which a company does business is mandatory. Careful analyses of these laws and rules will identify whether the company can save tax dollars.

NEW TAX PROPOSALS

Two new tax proposals will substantially reduce tax dollars by depreciating fixed assets faster and making more energy credits available to businesses.

Depreciation Of Fixed Assets

A pending bill which is likely to be passed within the next year by the Congress, HR 4646, "Capital Cost Recovery Act of 1979," provides that all fixed assets be categorized in three groups as follows:

	Fixed Asset Type	Depreciable Period
Class I	– Buildings and Structural Components	10 years
Class II	– All fixed assets except those in classes I and III	5 years
Class III	– Automobiles and light trucks (first \$100,000 per year only)	3 years

The bill does not cover intangible assets, residential real property, and land. A full 10% investment credit would be available to Section 38 property which falls under classes I and II; a 6% investment credit would be available to Section 38 property in class III.

The bill also provides for accelerated depreciation of fixed assets called the Capital Cost Recovery Allowance. Rather than use current accelerated depreciation methodology, there would be a table for each class of fixed assets and a different percentage would be applied to the original cost each year. Smaller businesses would be able to use this method with less difficulty than the declining balance or sum of the years-digits method. Figure 2-5 contains the Capital Cost Recovery Table.

FIGURE 2-5 CAPITAL COST RECOVERY TABLE

Ownership Year	Class of Fixed Asset		
	I	II	III
1	10%	20%	33%
2	18	32	45
3	16	24	22
4	14	16	
5	12	8	
6	10		
7	8		
8	6		
9	4		
10	2		
	100%	100%	100%

These tables assume that any fixed asset is bought in the middle of the year. This is why the first year's depreciation is less than the second year's depreciation. Salvage value is ignored in all computations and is accounted

Tax Considerations

for only when realized at disposal or sale of the asset.

The Capital Cost Recovery method has particular advantages for small and medium-sized businesses. For one thing, it is simple. The depreciation periods are short and the methods for accelerated depreciation and investment credits have been simplified. Companies should watch the developments on HR 4646 and be prepared to take advantage of its provisions when it is passed.

Energy Credits

The crude oil windfall profit tax provides for extension of the energy credits discussed above. For many years, Congress has used the tax law as a means to ac-

complish economic and political goals; today's need for alternate sources of energy is of such overwhelming national importance that energy tax credits will probably change and increase for the next several years. Companies must be aware of these changes in planning for current and future needs and should consult their tax advisors to determine that they are taking advantage of all provisions of these credits.

INTRODUCTION

Cash is the most critical asset of a company – most companies often experience times when there isn't enough of it; most companies often have times when there is too much. The purpose of this chapter is to cover some cash management techniques so that the company manager can better use cash. Effective cash management is discussed by analyzing the components of working capital – cash, short-term investments, receivables, inventories, and payables – and what the company may do to better manage each. Analytical review techniques relating to cash and working capital (as well as other aspects of a company's business) were included in Chapter 1. These should be used to aid the company in analyzing its working capital and helping to determine ways to use the ideas here and to improve its cash position.

In a recession cash management becomes most difficult. While the ideas expressed here are particularly appropriate in these times, their inherent value is timeless. Each company should adapt and adopt those techniques which are best suited to it and resolve to stick with them, challenge them, and enhance them throughout the recession – which the government projects will be both long and hard – and throughout periods of growth and prosperity.

WORKING CAPITAL AND CASH NEEDS

Working capital has a traditional accounting definition. It is the difference between a company's current assets and its current liabilities. A company's current assets are cash and other assets which are expected to be converted into cash within the longer of its operating cycle or one year; current liabilities are those which will be paid for by using current assets. Of course, a company goes into and remains in business with the goal of earning a profit. It provides goods or services for a price which exceeds their cost. This is not done instantly and a company will go through a continuous process of selling and buying goods or services. The Acme Company is an example – it sells stationery and office supplies.

Figure 3-1 illustrates the flow of working capital. Acme purchased inventory for \$1,000 and sold the inventory to its customers for \$1,300. The customers did not pay immediately for the merchandise and were billed on account. Sometime later when the customers pay Acme, it will again have cash – but now it is \$1,300 rather than \$1,000; the extra \$300 is profit. The process continues from here and hopefully the amount of money generated by the cycle grows bigger and bigger.

Figure 3-2 shows the period of time expiring in this cycle but it illustrates another important concept.

FIGURE 3-1 CASH FLOW AND WORKING CAPITAL

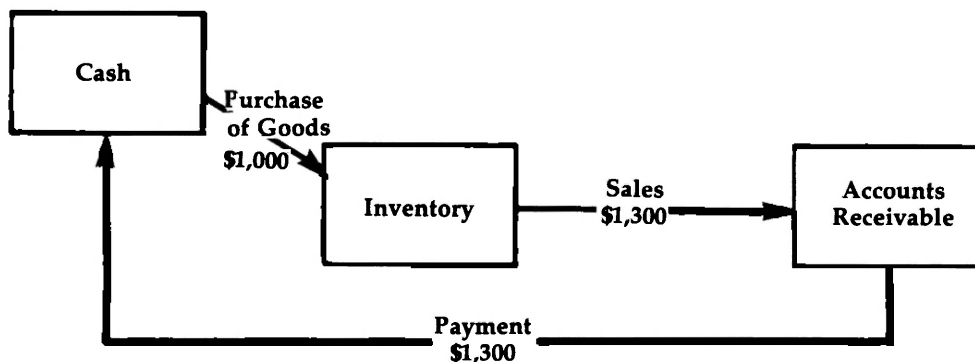
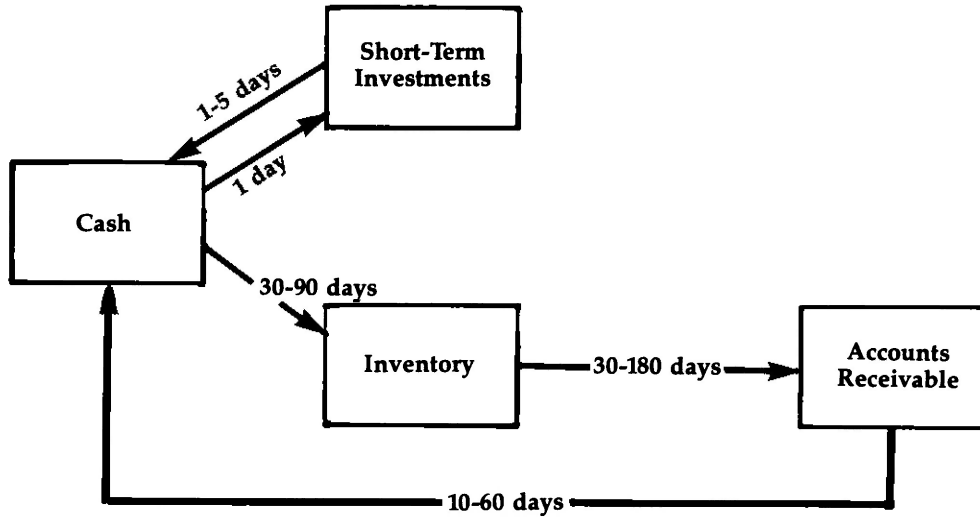


FIGURE 3-2 CASH FLOW TIME CYCLE



Cash is generally kept in a demand deposit at a bank and earns no money unless it is immediately put back into the working capital flow. Its investment – for however short a period – will earn a return for the company. That is why Figure 3-2 splits cash into two components – cash which does not earn a return and short-term investments which does. The term short-term investments here is not confined exclusively to stocks and bonds traded on an exchange or other securities market. The term includes any short-term investment which earns a return – including U.S. government and municipal obligations and interest-bearing bank deposits.

Working Capital Ratios

There are two working capital ratios that are used in determining liquidity and cash needs:

- Current ratio
- Quick (acid) ratio.

Current ratio is current assets divided by current liabilities. Figure 3-3 illustrates part of the balance sheet of the Acme Company.

FIGURE 3-3 PARTIAL BALANCE SHEET

Current Assets

Cash	\$ 600,000
Short-term investments	1,000,000
Accounts receivable	900,000
Inventories	2,500,000
	<u>\$5,000,000</u>

Current Liabilities

Accounts payable	\$2,000,000
Accrued taxes and expenses	600,000
Notes payable and current portion of long-term debt	400,000
	<u>\$3,000,000</u>

Cash Management

The current ratio is computed as:

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{\$5,000,000}{3,000,000} = 1.67$$

This means that for every \$1 of current liabilities there is \$1.67 of current assets.

The current ratio, however, seldom tells the full story. This is because inventories often take much longer to convert to cash than the period of time the company has to pay its current liabilities. Because of this, the quick ratio (also called the acid ratio) may be a better indication of a company's liquidity. Quick assets are defined as cash, short-term investments, and accounts receivable – that is, those assets which are presumed to be convertible into cash quickly. The quick ratio of Acme is computed as:

$$\frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{\$3,000,000}{3,000,000} = 1.00$$

This means that for every \$1 of current liabilities, there is \$1 of quick assets – apparently enough to pay off the current liabilities.

The Danger Of Ratios

But these ratios do not tell the entire story. Other matters must be considered. For example, Acme needs to examine when its assets will be converted into cash and when its liabilities must be paid. Acme finds that all of the short-term investments may be converted to cash in the current month and that only one-half of the accounts receivable will be collected; all of the accounts payable and accrued taxes and expenses

FIGURE 3-4 CURRENT CASH NEEDS

Current Assets	<u>Total</u>	<u>Collectible or Payable This Month</u>
Cash	\$ 600,000	\$ 600,000
Short-term investments	1,000,000	1,000,000
Accounts receivable	1,400,000	700,000
Inventories	2,000,000	—
	<u><u>\$5,000,000</u></u>	<u><u>\$2,300,000</u></u>
Current Liabilities		
Accounts payable	\$2,000,000	\$2,000,000
Accrued taxes and expenses	600,000	600,000
Notes payable and current portion of long-term debt	400,000	
	<u><u>\$3,000,000</u></u>	<u><u>\$2,600,000</u></u>
Working Capital	<u><u>\$2,000,000</u></u>	
Cash Deficiency		<u><u>\$300,000</u></u>

must be paid in the current month but the notes payable and current portion of long-term debt are not due for 120 days. Figure 3-4 illustrates Acme's current needs. While the company has \$2,000,000 of working capital and both a positive current and quick ratio, it just does not have enough money to meet its current obligations. It has to take action.

- Borrow money
- Speed up collections
- Put off payments
- Some combination of these.

The importance of this discussion is that a company manager must be involved in all aspects of cash flow in order to build a foundation for effective cash management. Working capital computations, ratios, even comparisons to other periods, other companies, and industry averages are just not enough. The company manager must dig deeper – he must understand what underlies each of his current assets and liabilities and how they interact.

Understanding the basic concepts of working capital is critical to understanding what the company can do to better manage cash. This is discussed in the rest of this chapter.

SPEEDING UP CASH RECEIPTS

Once a company understands working capital concepts and how to adequately determine its cash needs, it should look at its operations to determine how to improve its cash flow. The most obvious place to start is with the company's sales, billings and collections policies. These are the typical separate steps in a company's sales cycle.

- Company receives order from customer
- Company does credit check and authorizes the sale
- Warehouse prepares merchandise
- Shipping department ships merchandise
- Accounting department prepares bill
- Company mails bill
- Customer receives bill and sends it through its own internal process

- Customer prepares check and mails it
- Company receives check and deposits it
- Company's bank clears check
- Company has cash available in its bank.

A company must look at its system, determine the amount of time each of these separate steps takes, and whether it can improve this. Most companies handle sales orders expeditiously to the point where the merchandise is shipped to the customer – if a company didn't, it would lose sales. However, many companies do not pay enough attention to controlling the related paperwork to assure that billings and collections are as fast as possible.

Billings

Most companies hope that their bills will be paid within 30 days. In practice most bills are not paid until approximately 50-60 days after the billing date. Speed is therefore critically important. A company should:

- Bill as quickly as possible after the sale is made.
- Bill frequently – do not wait until the end of the month particularly if the sale is a large amount.
- Make the bill easy to understand – determine that relevant and necessary information such as quantities, styles and style numbers, unit prices, extensions, footings are accurate. A bill which is easy to understand will be processed quicker by the customer.
- Provide the customer with the means to make payment easier. A pre-addressed return envelope is one inexpensive technique often used with small retail or consumer customers.

Sales Discounts

A company should consider adopting sales payment terms with a cash discount for quick payment. The usual terms which many companies with sales discounts have are "2/10, net/30." This means that if the bill is paid within 10 days, the customer may deduct 2%; if not, the full amount of the bill is payable in 30 days. The company is willing to take 2% less than the

sales amount in exchange for the use of the money for 20 days – this translates to an effective interest rate of 36%. However, as already mentioned, most companies take 50-60 days to pay bills regardless of the sales terms. Therefore a 2% discount for payment within 10 days will effectively give the company the use of the money for 40-50 days which is an effective interest rate of 14-18%. This is a very competitive rate today and the company may avail itself of funds at this rate, effectively borrowing without loan agreements, compensating balances, restrictive covenants, or any of the other usual conditions of an institutional loan.

There are some drawbacks to sales discounts which a company should consider. Sometimes a customer will take the discount and not pay within the discount period. The cost of determining that sales discounts are only taken within the discount period and attempting to collect unearned discounts from customers as well as the loss of customer goodwill which these actions could generate may mitigate the advantage; each company must evaluate its own circumstances. But the potential advantages, as discussed above, can be so large that all companies should at least carefully consider offering cash discounts. Do some experimenting.

Accelerating Check Clearing

Needless to say, cash receipts should be deposited immediately. The faster they are deposited, the faster the funds will be available for the company to draw. Depending on a company's size there are other things it may do to accelerate check clearing. One of these is to establish a lockbox system. If a company operates in several areas of the country or has sales to different areas of the country, it may direct its customers to send payment to strategically located post-office boxes in several cities. The company gives a local bank the authority to open the box and to deposit the funds in the company's account. Since the checks are drawn on banks in the same area, they will clear quicker. Wire transfers can then be used to transfer funds immediately where they are needed. A bank charges a fee for its services with a lockbox system but it can nevertheless save money by accelerating the time it takes for

deposited funds to be available and investing the funds or reduce borrowings.

It is often necessary to analyze the projected savings by area to determine where to have lockboxes. For example, if the company operates in the Northeast, Midwest and Northwest, it may consider having lockboxes in New York, Chicago and Seattle. An analysis of the banks' charges and the interest factor on accelerated cash receipts should be done separately for each area. If the company determines that a lockbox will save money in New York and Seattle but not in Chicago, it should not have one in Chicago.

DELAYING CASH DISBURSEMENTS

Delaying cash disbursements is the mirror image of accelerating cash receipts. Accordingly, it will be discussed very briefly. Just as a company wants to receive cash as quickly as possible, it makes good sense to delay disbursing cash as much as possible. A company can do this in two ways:

- Delay payment of bills
- Use bank float.

Delaying Payment of Bills

As discussed before, although most companies desire payment of bills within 30 days, most bills are not paid for 50-60 days. A company should not pay its bills until it has to. This is dictated by several factors:

- Sales terms
- Competitive conditions
- Discounts available.

Obviously, a company does not want to delay its bills so long that it risks legal action or the wrath of its suppliers. Nevertheless, paying a bill only when it has to will conserve a company's cash and provide more earnings. If the terms are net 30 days but the common practice is to pay in 60, this is the period the vendor really expects. The company should also consider the effect of discounts – if the interest factor for paying sooner is less than the company's cost of borrowing, it should delay payment and not take the discount. On the other hand, if the interest factor exceeds the com-

pany's cost of borrowing, then it makes good sense to pay early and take the discount.

Bank Float

Bank float is the difference between the amount of cash a company has and the amount its bank's records show it has. A company usually has less cash than the bank's records show because at any point in time there are usually outstanding checks drawn by the company which have not cleared the bank. By analyzing its float a company could determine an amount by which it could consistently overdraw its account without ever having its bank balance actually go below zero. But this is illegal in many states. A company could, however, draw against its compensating balance if it has a bank loan without violating the law. A compensating balance is an amount of money a company agrees to keep on deposit in a noninterest-bearing account at a bank in exchange for a loan or credit line – it effectively decreases the amount of the loan and increases the effective interest charge. Here is how this might work. Betaphi has a \$100,000 credit line at its bank which it has not borrowed against. The credit agreement specifies that Betaphi must have a compensating balance on deposit of \$10,000. Betaphi analyzes its outstanding checks and finds that on average there is \$5,000 of outstanding checks and this has never been greater than \$6,000. Betaphi decides that it can maintain a cash balance of \$4,000 – this amount plus the amount of its maximum outstanding checks of \$6,000 will always cover its compensating balance agreement. Betaphi is maximizing the use of its cash and it is lowering its interest cost because it has the use of \$96,000 of its credit line rather than just \$90,000.

A second way a company can use bank float – coupled again with compensating balance arrangements – is to draw its checks on out of town banks. The delay in clearing these checks also affords a company the opportunity to make optimum use of cash.

SHORT-TERM CASH INVESTMENT

It is important for a company to maintain liquidity. Cash is needed for basically two reasons:

- To meet a company's obligations
- To have a safety margin above the amount needed to meet normal obligations to cover emergencies or unexpected cash needs.

Cash itself, although the most liquid asset, is a non-earning asset. In fact, in periods of inflation holding cash works to a company's detriment because it will lose purchasing power and thus buy less. A company should invest its surplus cash – the amount above what's needed to cover normal obligations plus a safety amount. Investing surplus cash will provide a return which is not available by leaving the money in a checking demand deposit. A company must be very careful to invest only in investments which can be quickly converted back into cash if it needs quick availability and have minimal risk of depreciating. Among the short-term investments a company should consider are:

- U.S. Treasury obligations. These are probably the safest. Treasury bills, which sell at a discount, have 3-month, 6-month, 9-month, or 1-year maturity and are tradeable on the open market. They are easy to purchase in denominations of \$10,000.
- Certificates of deposit. These are negotiable interest-bearing obligations of commercial banks. They usually mature in periods of up to 1 year. Most certificates are issued by very large commercial banks and risk of loss is minimal. However, because there is some risk, the interest is usually higher than is paid on U.S. Treasury obligations. Denominations available vary and are sometimes very high often making the investment impractical for most companies.
- Obligations of other Federal agencies. Federal agencies such as the Government Mortgage Association, Federal National Mortgage Association and Federal Home Loan Bank issue securities. These are not guaranteed by the U.S. Treasury and the interest rate is usually a little higher. They are, however, very safe investments.
- Commercial paper. Commercial paper is debt issued by corporations for a short period of time.

Maturities are usually less than 1 year. The instrument is not secured and because of this only the most successful corporations can market it. Accordingly, it is a very safe investment. The interest rate is also a little higher than U.S. Treasury obligations. Denominations usually start at \$100,000 but can be as low as \$25,000.

- Money market funds. These have become very popular in recent years. Money market funds are available in very low denominations – as low as \$1,000 – and are therefore very attractive to a smaller company. Money market funds are usually a combination of U.S. Treasury and other government obligations, certificates of deposit and commercial paper. The fund, which is managed by professionals, buys these investments in large quantities and is able to sell small pieces to companies and individuals. The fund may charge a small service charge but the yield to the investor is still usually higher than for U.S. government obligations. Because it is managed by professionals, the individual investor does not have to worry about making investment decisions. The investment, although not guaranteed, is very safe. Often the investor is able to write a check against the fund and this is an added advantage because the investment continues to earn interest until the check is presented for payment. Several business publications periodically publish lists of money market funds and information about their portfolio holdings, and current yield.

SUMMARY

Cash management is the first step in a program to combat recession and inflation. We believe an effective program has these basic elements:

- Understanding and planning working capital and cash needs
- Speeding up cash receipts
- Delaying cash disbursements
- Careful investment of cash to preserve its value and maximize earnings.

CHAPTER 4 –

INFLATION ACCOUNTING

One final area must be covered briefly – inflation accounting. As the Executive Summary states, today's economy has a dual problem – recession with inflation.

Besides the work which a company manager must do to cut costs to effectively manage, he must also provide for effective financial reporting. Effective financial reporting aids effective management. Conventional financial reporting is not enough in today's economy – it must be supplemented by reporting that considers the effects of inflation.

FIGURE 4-1 INFLATION ADJUSTED FINANCIAL STATEMENTS

BALANCE SHEET

<u>Assets</u>	<u>Historical Cost</u>	<u>Inflation Accounting Adjusted</u>	<u>Liabilities</u>	<u>Historical Cost</u>	<u>Inflation Accounting Adjusted</u>
Current Assets:			Current Liabilities:		
Cash	\$ 50,000	\$ 50,000	Notes payable	\$ 70,000	\$ 70,000
Accounts receivable	100,000	100,000	Accounts payable	110,000	110,000
Inventories	90,000	140,000		<u>180,000</u>	<u>180,000</u>
	<u>240,000</u>	<u>290,000</u>	Long term debt	1,000,000	1,000,000
Property, plant and equipment	1,200,000	1,500,000	Stockholders equity	260,000	610,000
	<u>\$1,440,000</u>	<u>\$1,790,000</u>		<u>\$1,440,000</u>	<u>\$1,790,000</u>

INCOME STATEMENT

	<u>Historical Cost</u>	<u>Inflation Accounting Adjusted</u>
Net Sales	\$5,000,000	\$5,000,000
Cost of Sales	3,800,000	4,100,000
Selling general and administrative	600,000	600,000
Depreciation	100,000	150,000
	<u>4,500,000</u>	<u>4,850,000</u>
Income before taxes	500,000	150,000
Provision for taxes	250,000	250,000
	<u>\$ 250,000</u>	<u>\$ (100,000)</u>

WHAT YOU SHOULD DO

We believe all companies should have inflation financial information available internally to judge how much “real” profits they are making. Even if a company does not choose to comply with SFAS 33 for external reporting – and we believe its requirements are cumbersome for most small and medium sized companies – it still needs inflation accounting information. We suggest the following basic concepts:

- Stop thinking in terms of the Consumer Price Index. It is rare that an individual company’s particular circumstances will track the CPI. Start thinking about how inflation is affecting your particular company.
- Use the LIFO method of inventory. It is not only a good tax method, it makes sense from an accounting and economic point of view. Much of today’s “record profits” are caused because cost of sales is lower than the inventory replacement cost. The company must pay more for new inventory to stay in business. Using LIFO, the cost of sales approximates replacement cost.
- If depreciation is significant in the financial statements, it should be adjusted for what depreciation would be if the fixed assets were replaced today at current cost. In other words, if the historical cost of fixed assets is \$1,000,000 and they are being depreciated over a weighted average life of 20 years, depreciation expense will be \$50,000 per year. However, if it would cost \$3,000,000 to replace these fixed assets, depreciation would be \$150,000 per year – \$100,000 more. Remember, fixed assets do wear out and the company cannot stay in business unless they are replaced. Depreciation based on replacement cost is a better indication of the effects of inflation.

A company should always adjust its historical financial statements for inflation’s effect on inventory and depreciation. This is vital for internal financial statements on which day-to-day decisions are made. Figure 4-1 illustrates the application of these basic principles.

SFAS 33

The Financial Accounting Standards Board, the accounting profession’s rule-making body, issued Statement of Financial Accounting Standards No. 33 (SFAS 33), *Financial Reporting and Changing Prices*, in late 1979. SFAS 33 requires large publicly held companies to publish supplementary financial information showing the effects of inflation. It encourages other companies to follow its provisions. Touche Ross has written and published *Financial Reporting and Changing Prices - A Guide to Implementing FASB Statement 33*. This guide, which is available from any Touche Ross office on request, discusses the requirements of SFAS 33 and gives detailed examples for compliance.